DOCUMENT RESUME

ED 149 177	08	CE 014 686

AUTHOR	Herr, Edwin L.
TITLE	Research in Career Education: The State of the Art. Information Series No. 106.
INSTITUTION	Ohio State Univ., Columbus. ERIC Clearinghouse on Career Education.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	77
CONTRACT	400-76-0122
NOTE	89p.
AVAILABLE FROM	National Center for Research in Vocational Education Publications, Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210 (IN 106, $6.25, quantity and series discounts available)
EDRS PRICE	MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS	*Career Education; Concept Formation; Curriculum Development; *Educational Assessment; *Educational Development; Educational Objectives; *Educational Research; Educational Resources; Educational Strategies; Elementary Secondary Education; Evaluation Methods; Federal Programs; Inservice Teacher Education; Literature Reviews; Post Secondary Education; *Program Evaluation; *Research Methodology; Research Reviews (Publications); State of the Art Reviews; State Programs; Teaching Techniques

ABSTRACT

A review, analysis, and synthesis of research in career education, which identifies emerging trends, program successes, and the overall relationship of career education to vocational and general education programs, is presented in this information analysis paper. Six major sections are included. Section 1 presents perspectives on the growth and philosophy of career education, including discussion of the status and objectives of career education. Section 2 focuses on implementation approaches including multiple component school-based approaches, experience-based approaches, and the rural/residential approach. Curriculum development at the elementary, secondary, and postsecondary school levels is covered in section 3; section 4 reviews teaching/counseling methods and group methods and techniques. Section 5 cites studies dealing with effects of the following learning resources: audiovisual multimedia, print materials, mobile units, community and parents, career resources centers, and simulations. Section 6 briefly deals with staff development and describes the evaluation of inservice programs and inservice patterns. A summary of the findings described in the review and conclusions and recommendations concerning research and evaluation are included. (TA)

ED149177

RESEARCH IN CAREER EDUCATION:
THE STATE OF THE ART

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1977

CE 014 686

This publication was developed under Contract Number NIE-C-400-76-0122 with funds provided by the National Institute of Education, Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, however, necessarily represent official views or opinions of the National Institute of Education.

FOREWORD

The Educational Resources Information Center on Career Education (ERIC/CE) is one of sixteen clearinghouses in a nationwide information system that is funded by the National Institute of Education. The scope of work for ERIC/CE includes the fields of adult-continuing, career, and vocational-technical education. One of the functions of the Clearinghouse is to interpret the literature that is related to each of these fields. This paper on research in career education should be of particular interest to counselor educators, teacher educators, and those engaged in career education research and curriculum development.

The profession is indebted to Edwin L. Herr, The Pennsylvania State University, for his scholarship in the preparation of this paper. Recognition is also due Marlowe Slater, University of Illinois, and N. L. McCaslin, The Ohio State University, for their critical review of the manuscript prior to its final revision and publication. Marla Peterson, Career Education Specialist at the ERIC Clearinghouse on Career Education, supervised the publication's development. Madelon Plaisted and Jo-Ann Cherry coordinated the production of the paper for publication.

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ABSTRACT

A review, analysis, and synthesis of research in career education, which identifies emerging trends, program successes, and the overall relationship of career education to vocational and general education programs, is presented in this information analysis paper. Information gathered from review of selected studied (independent evaluation and research studies and federally funded demonstration projects, evaluation and project reports) includes, where possible, the problem, descriptions of the treatment or process, sample characteristics, instruments used for data collection, statistical procedures used, and findings. Addressed to educational researchers, curriculum developers, teacher educators, and career educators, the state-of-the-art review has six major sections. Section 1 presents perspectives on the growth and philosophy of career education, including discussion of the status and objectives of career education. Section 2 focuses on implementation approaches including multiple component school-based approaches, experience-based approaches, and the rural/residential approach. Curriculum development at the elementary, secondary, and postsecondary school levels is covered in section 3; section 4 reviews teaching/counseling methods and group methods and techniques. Section 5 cites studies dealing with effects of the following learning resources: Audio-visual, multimedia, print materials, mobile units, community and parents, career resources centers, and simulations. Section 6 briefly deals with staff development and describes the evaluation of inservice programs and inservice patterns. A summary of the findings described in the review and conclusions and recommendations concerning research and evaluation are included. (TA)

DESC::*Research Methodology; *Career Education; State of the Art Reviews; *Educational Assessment; Literature Reviews; Research Reviews (Publications); Evaluation Methods; *Program Evaluation; Elementary Secondary Education; Post Secondary Education; Curriculum Development; Teaching Techniques; Educational Resources; Inservice Teacher Education; Educational Strategies; Concept Formation; Educational Objectives; *Educational Research; *Educational Development; Federal Programs; State Programs

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INTRODUCTION

Attempting to assess the status of research in career education is hampered by several realities. First, career education is not a singular process leading to a singular result. Rather, *career education* is a term used for a group of activities, processes, and interventions occurring at different educational levels and in community settings concerned with producing a large number of possible outcomes. In many instances neither the career education approach nor the outcome sought is clearly or specifically identified by the researcher. Indeed, its distinction from other aspects of an ongoing educational program is sometimes blurred.

Second, it is difficult to draw lines about what research should be included or excluded from consideration. Since career education is a comprehensive term, research on career development processes, occupational education, educational change, and many other areas is relevant. However, to preserve the original charge for this paper, unless the researcher specifically identified career education in the title or the procedures of the study, it was not typically included here. A similar judgment was made about the time when the study was conducted. If the research was conducted before the term *career education* was officially introduced by the U.S.O.E. in January 1971 it was not included.

Third, many of the findings available about career education come from evaluation studies or final project reports rather than clearly defined research studies per se. A body of independent research has evolved since 1971 but since much career education activity during the period of 1971 to 1974 was comprised of federally funded demonstration projects, evaluation and project reports tend to predominate.

The studies analyzed in this paper were gathered in several ways. The majority were identified through computer searches using a wide variety of descriptors and supervised by Dr. Marla Peterson at the ERIC Clearinghouse on Career Education, The Ohio State University. Nearly 400 items were identified as potentially pertinent to this paper. Of these, 183 included evaluative or research data of some type varying from the subjective to the experimental. In addition to the computer searches, *Dissertation Abstracts* and recent issues of the *Journal of Career Education*, the *Journal of Vocational Behavior*, and the *Vocational Guidance Quarterly* were reviewed to identify pertinent evaluative or research reports. Finally, a number of federal reports in my personal library were examined for possible relevant material.

Throughout the review of the studies a number of pieces of information were sought: the problem, descriptions of the treatment or process, sample characteristics, instruments used for data collection, statistical procedures used, and findings. In most instances, not all of these elements were included. Indeed, in many instances, few of these elements were discussed directly; it was necessary to infer certain information from that which was provided.

No research or evaluation was found pertinent to some original categories suggested by the ERIC Clearinghouse on Career Education. These gaps will be identified at the end of the paper. What remains is a somewhat arbitrary condensation of categories. Even these are not mutually exclusive since most evaluation studies cross categories and often could be logically placed in more than one.

Finally, the studies reported here are not the best nor are they exhaustive of every existing evaluation or research study about career education. Since this is intended to be a state-of-the-art paper, the good, the bad, and the mediocre are reflected here to indicate the status of the research base on which career education rests in March of 1977. However, it must be noted that a research base is not static but dynamic. New evaluations and research studies are constantly appearing. As might be expected, they are generally improving in design and implementation as career education approaches move to greater maturity. It also must be noted that the evaluative and research studies included here are those which have been reported. It is possible that significant research and evaluation have occurred but have not been reported. At any rate, what follows is not a finite presentation of everything I reviewed or that exists. Space does not permit that. What is presented is representative of the state of the art in research in career education and if it is a biased view, it is because the poorest examples of evaluation were not included.

PERSPECTIVES ON THE GROWTH AND PHILOSOPHY OF CAREER EDUCATION

Career education is a dynamic concept. Since 1971 it has pervaded American educational literature (as well as local, state, and federal priorities), reset the instructional gyroscopes from kindergarten to grade twelve in many school districts, and has had an impact on higher education as well as some adult populations. The Educational Amendments of 1974, PL 93-380, made career education a law of the land, authorizing monies for the first time to support specific activities in behalf of career education. The Educational Amendments of 1976 carried that perspective forward and currently the Elementary and Secondary Career Education Act is before the U. S. House of Representatives to privide general implementation funds for school districts. Other legislative efforts apparently are standing in the wings waiting to move the implementation of career education into arenas beyond grades kindergarten to twelve. This section presents studies, primarily descriptive, of the frequency of the provision and the characteristics of career education as well as the views of it held by various publics.

THE STATUS OF CAREER EDUCATION

The rise of career education and its characteristics have been chronicled in a number of studies. One of these was reported by the Chief State School Officers in 1975 (Crawford & Jesser, 1975). It was found that by 1975, fifty-five of fifty-seven jurisdictions (all states--seven extra-state jurisdictions) reported the existence of a staff member responsible for career education. The housing or funding of these persons is, however, not uniform. The person having responsibility for career education reported directly to the Chief State School Officers or the deputy chief in eight agencies. Nineteen reported directly to persons responsible for vocational education programs. Eighteen reported to persons having responsibilities for instructional services. There appeared to be a direct relationship between funding sources and lines of organization or communication. It was found that funding of career education in twenty-two states (42.3 percent) was by federal funds, primarily Vocational Education Act sources. Nineteen states (38 percent) indicated that career education was funded by state monies, and eight states reported a combination of state/federal monies were used. In sum, nearly half of the reporting agencies indicated that the state leadership of career education was supported in whole or in part by state funds.

From 1972-73 to 1973-74, all reporting states indicated an increase in the number of elementary pupils participating in some manner in career education. Spectacular increases were reported in some states. New Mexico indicated a rise of pupil participation from 10 percent in 1972-73 to nearly 100 percent in 1973-74. Iowa, Kansas, Kentucky, and Texas indicated large gains. Overall, 6 percent of the nation's elementary school children were involved in 1972-73 with a rise to 13 percent in 1973-74. Only 20 percent of the states reported data on the participation of middle school or high school students. Therefore it was not possible to draw national generalizations. It did appear, however, that the most action was occurring at the elementary school level, the next at the middle school/junior high level, and the least at the senior high school. A major reason for this situation was that it would seem more amenable to infuse basic concepts of career education into existing elementary classes than into higher education levels.

In terms of teacher involvement, only twenty-eight states reported. In these states there were 660,000 elementary school teachers of whom 51,000 (7.8 percent) participated in career education inservice programs during 1973-74. The range of elementary school teacher inservice involvement from state to state was .4 percent to 60.9 percent. In the 28 states reporting there were 525,574 secondary school teachers, of whom 44,520 (8 percent) participated in inservice activities. The range by separate states was reported to be .5 percent to 48 percent. Sixty-four percent of the states reported that they have some form of advisory council with which they work in relation to career education.

The authors of this report stressed the difficulty in interpreting the findings reported because of differences in definition, interpretation, and reporting among the states. The report concludes with a number of recommendations dealing with needs assessment, communication, funding, legislation, role definition, and teacher training.

Another major review of the national status of career education was reported by Project Baseline at Northern Arizona University in June 1974 (Worthington, 1974). The early parts of this study trace the origins of career education and its early national models. In discussing the career education continuum, the report summarizes studies which indicate that vocational education is the principal vehicle in schools to provide the skill development component of career education. As such it should be made available to at least twice as many in the upper secondary grades as it is not reaching; some argue that it should also be expanded at postsecondary and adult levels.

Turning to the state of the art nationally, it is reported that career education is being implemented to some extent in every state. By 1973-

74 the federal government had expended fifty million dollars on developing and testing four career education models: the school-based, the employer-based, the home/community-based, and the rural/residential models. In addition, federal funding had established at least two "mini-model" developmental efforts in each state. The report argues that the school-based national model has the most promise for changing American education and thus the curriculum materials developed in that program should be made available to schools across the country. This was done in 1975.

In surveying the financing of career education nationally, the report indicated a number of problems. A major one is that the states have little or no accurate information on local expenditures for career education. Analysis of expenditures for career education reveals that 71 percent of the federal effort was derived from vocational education funds and that little or no activity has occurred, either through state or federal stimulus, in the preschool, community college, university, adult, or continuing education settings.

The final part of this report deals with future prospects for career education. It concludes that response, both educational and public, to the idea of career education has been favorable. General polls of the public are positive with one indicating that the majority of Americans consider preparing students for work the most important job of the schools. The report surveys barriers to future career education progress and observes that legal barriers must be overcome to permit more youth to participate in realistic work experience.

Also in 1974, the Office of Career Education of the U.S.O.E. published *Career Education: The State of the Scene*. That assessment indicated that by 1974, fifteen states had adopted a career education resolution, thirty-five had developed career education position statements, twenty-five had state plans for career education, forty-two had designated career education coordinators, twenty-five state legislatures had appropriated funds specifically earmarked for career education, five states had enacted career education legislation, and at least six others were pursuing such an effort. This report also indicated that over thirty states had approved definitions of career education which, while varying widely, tended to agree that:

1. Career education has as its major goal improving the relationship of education and work, including the view that education is preparation for work.

2. Career education is for persons of all ages.

3. Career education should permeate the educational process.

The report also indicates that there is considerable agreement among the state definitions that to be successful career education must involve the entire community.

According to *Career Education: The State of the Scene*, by 1974 career education had found its greatest support and exerted its greatest influence in elementary, middle, and secondary schools. Up to that time, most of the funds, projects, curricula, staff development, and evaluation had taken place at these levels. Available information indicated that career education was taking place in approximately 5,000 of the nation's 17,000 school districts.

Also in 1974, Fehl completed a doctoral dissertation designed to evaluate the availability of career education for handicapped students. By use of a panel of special education and career education experts, a survey instrument was constructed, and seventeen exemplary career education programs in seven states were identified, visited, and evaluated in ten areas using the survey instrument. The results were:

1. No programs provided career education for all types of handicapped students, and career education programs for regular students were not including the handicapped.
2. In two areas (the learning disabled and multihandicapped) no career education programming was being offered.
3. Programming in career education for the deaf and blind is now being offered in public school settings instead of the traditional state or private settings.
4. With one exception, the exemplary career education programs that were visited were not patterned after any type of theoretical model.
5. Program delivery in career education was being achieved via self-contained classrooms, regular classrooms, resource rooms, and resource centers.

In 1976, McLaughlin reported on a national survey of career education in the public schools during 1974-1975. The goal of the report was to provide a comprehensive picture of the kinds and amounts of career education activities currently in process in the United States. The basic survey population consisted of 900 of the nation's 16,338 local school districts representing 50,000 of the nation's 45,000,000 students. A survey instrument was developed, field tested, and administered by mail and telephone in the fall of 1975. The responses to the survey were analyzed primarily as they related to six key questions:

1. How much career education was going on?

2. Which types of activities were typical and which were lagging in implementation?

3. How important were various roles in the delivery of career education?

4. Is career education being implemented equally for all sectors of society?

5. Are special efforts being undertaken for the handicapped and for women and ethnic minorities?

6. What factors were related to successful implementation of career education programs and activities?

Additional surveys were conducted of state education agencies and of schools of education using adaptations of the survey instrument used to collect data from local districts. A survey of available curriculum materials was also conducted and indexed. It is impossible to summarize in a few sentences all the data in this 190-page (plus extensive appendices) report. Therefore, only direct excerpts from the various summaries in the document are reported.

Of the nine learner outcomes of career education endorsed by the U.S.O.E. in 1975, all were rated by local school districts in the survey sample as somewhere between important and absolutely necessary. The implementation of career education activities to achieve these outcomes was gradual, however, with a majority of survey respondents describing their districts' efforts as now limited. Although a majority of the nation's school districts were engaged in at least some staff development activities in career education, only 3 percent had taken all five steps of obtaining funds, allocating staff, writing a formal policy, forming an advisory committee, and carrying out formal evaluations with respect to career education. Approximately 20 percent of the nation's teachers had been involved by 1975 in career education activities. Of fifteen student career education activities assessed, half the students were in school districts in which at least one was implemented broadly. A fifth were in districts that had implemented over half the activities broadly, and only 3 percent were in districts in which all had been implemented broadly.

Increased community involvement emerged as an essential component of successful career education programs; levels of activity were higher where representatives of the business, labor, and industrial community were involved. The activities most frequently reported as effective in helping young people learn about and prepare for work all involved bringing students together with work-world representatives.

At the state level, there was considerable variation of activities to promote career education. Although most state agencies had policy statements on career education, very few had enacted specific legislation supporting career education. In most local districts in which the level of career education activity was high, there was acknowledgment that support from the state education agency was helpful. However, in many states the state education agency impact occurred primarily through demonstration projects rather than directly on the majority of local districts.

In the teacher training institutions, there was a great deal of discussion of career education; however, the implementation of actual training programs for career educators was not yet at a significant level. Few schools of education allocated as much as 3 percent of their budgets to career education programs.

THE PHILOSOPHY AND OBJECTIVES OF CAREER EDUCATION

An increasing amount of literature is available which debates the merits of career education or some aspect of it. Most of this literature reflects the judgments or biases of a particular author or interest group. Relatively few of the reported critiques have done so by surveying or systematically investigating the attitudes about and perspectives on career education by consumers, persons planning and providing it, or persons affected by it. Such studies are among those described in this section. Some other perspectives, integrated with studies of the outcomes of career education, are reported elsewhere in the paper.

In 1975, the Office of Career Education published an official policy paper of the U. S. Office of Education entitled *An Introduction to Career Education* (Hoyt, 1975). This paper presented the results of a consensus statement representing conceptual agreements on career education. The consensus statements were arrived at by distributing, during 1974, a draft document and study guide to persons representing a variety of groups throughout the fifty states. The basic groups were local career education practitioners, state department of education professional staff, and persons described as national leaders who had been invited either to conceptualizer or philosopher conferences sponsored by the Office of Education. The numbers included in each of these groups, respectively, were 224, 40, and 17. From this consensus-seeking effort the paper identified above emerged and included a definition of career education, ten concept assumptions, twenty-five programmatic assumptions, implementation tasks, learner outcomes, and basic educational changes championed by career education. While some critics have questioned the representativeness of the groups forming the consensus, the statements in the policy paper clearly set forth a position about what career education is and the goals to which it is directed. The definition of career education which the consensus statement provided was:

> Career education is the totality of experiences through which one learns about and prepares to engage in work as part of her or his way of living.

According to the consensus statement, the nine outcomes which career education seeks to achieve in persons leaving school are:

1. Competence in the basic academic skills.
2. Good work habits.
3. Meaningful work values and a desire to work.
4. Career decision-making and employment-seeking skills.
5. Entry-level occupational skills.
6. Career choice.
7. Awareness of continuing education opportunities.
8. Successful job placement.
9. Incorporation of work values into personal values.

Development Associates (1975) reported on a survey of teachers and counselors in fifty locations around the nation and found that over half the teachers and counselors queried indicated that in their judgment it was important to include career education in the curriculum. In the Seventh Annual Gallup Poll of public attitudes toward education, Gallup (1975) reported strong public support for the kinds of goals to which career education is addressed. Reviewing 1972 and 1973 polls pertinent to the issue, Gallup reported that 44 percent of the 1972 sample, when asked for the goals of career education, answered "to get better jobs." Thirty-eight percent answered "to make more money--to achieve financial success." The 1973 Gallup poll posed the question, "Should public schools give more emphasis to a study of trades, professions, and business to help students decide on their careers?" According to 90 percent of the respondents, the answer was yes--more emphasis on such matters should be given. Seven percent of the respondents said no and 3 percent had no opinion.

Some other surveys suggested that while there was general support for career education there was also some confusion and skepticism. For example, the National Institute of Education Career Education Program Plan for FY 1975 included survey results concerned with what various observer groups gave as reasons why people should go to school. NIE indicated that the primary reasons given included preparation for work, economic success, and better jobs. This report also indicated that some groups remain skeptical about whether career education is more than a fad or a way of limiting the mobility of minority populations.

McCusiston and Walker (1976) studied the acceptance of the career education concept by junior college mathematics and science faculty. They converted a standard definition of career education into an instrument composed of five instructional objectives with five levels of support for each. The instructional objectives were:

1. Students should acquire useful information regarding the occupational structure of the economy.
2. Students should become aware of their obligation to productive work.
3. Students should learn the requisites of the various occupations in the science/mathematics areas.
4. Students should learn the career opportunities in the science/mathematics areas.
5. Students should be assisted in making career decisions.

The subjects for the study were seventy-five instructors of mathematics whose names appeared in various junior college mathematics journals as editors, authors, or organizational officers. For science, the names of fifty junior college science instructors were selected from junior college catalogs representing public and private, as well as large and small colleges in fifteen states. Forty-eight percent of the questionnaires were returned. The results were that objective three was ranked first. Seventy percent agreed that this objective should be included in mathematics courses; fifty percent agreed that most mathematics faculty would feel competent to teach it. About 91 percent agreed that objective one is a worthy objective for a mathematics course. The authors concluded that junior college science and mathematics faculties are generally ignorant of and nonsupportive of career education concepts.

Moshier's doctoral dissertation (1974) presented some secondary school corroboration of McCusiston and Walker's findings of a bias against career education by mathematics and science teachers at the community college level. Moshier studied the extent to which career education goals identified in the comprehensive career education model (CCEM) conducted at the Center for Vocational Education, The Ohio State University, were incorporated into curriculum and valued by kindergarten-to-twelve teachers in the Fresno Unified School District, California. Opinionnaires based on the CCEM goal statements were developed for each grade level. Responses to the opinionnaire were obtained from a total of 593 elementary, junior high, and senior high school teachers. The findings were that the CCEM goals were incorporated to a greater degree in the curricula of grades kindergarten to four than was true in the other grades. From grades five through twelve, career education goals received little to moderate emphasis. There was, however, generally positive evidence that teachers felt that the career education goals should receive greater emphasis in all grades from kindergarten to twelve. However, it was found that mathematics and science teachers would be less willing to teach the goals than would teachers in any other discipline area in the secondary school.

Watson (1976) assessed the attitudes of students in two cooperative career education programs to determine how these students perceived their training. The subjects were selected from two cooperative career education programs: (1) Project Space Age Career Education (PS), an employer-based project; (2) Project Career Opportunity and Education for the Disadvantaged (PC), a school-based project. The subjects consisted of 101 high school students; 53 from PS and 48 from PC. The data collection instrument was QUESTA II--a questionnaire developed by the Secondary School Research Project of Educational Testing Service, Princeton, New Jersey. Comparisons of the responses were made for six groups: PS and PC students; nonwhite, white students; and female, male students. It was found that the overall attitudes of PS students was slightly more positive than PC students about all ten areas included in QUESTA II. PS females were more positive than PC females, although PC males were somewhat more positive than PS males. Nonwhite PS students were somewhat more positive than PC nonwhite students.

IMPLEMENTATION APPROACHES

Approaches to the implementation of career education vary. Some efforts focus principally on infusion of curriculum; some involve several components; some concentrate on separate classes or on career centers. Examples of findings reported about these approaches are discussed later in this report. Unfortunately, when career education efforts in a local setting include multiple efforts (infusion, field trips, career centers, resource persons), the separate contributions of these elements are rarely considered. Process or formative evaluations are not abundant in the literature. More frequently, career education is discussed in product terms in which all the separate components are pooled, thereby obscuring specificity of treatment effects.

MULTIPLE COMPONENT SCHOOL-BASED APPROACHES

In a summary evaluation by Behavioral Research Associates (1975) of career education in Southern Arizona (Pima and Cochise Counties), the career education components were pooled for outcome comparisons of experimental and control groups. The career education activities involved were exploration kits, in-class work experiences, career education games, career education fairs, speakers, films, and field trips. It was not clear precisely how many students were involved in the experimental and control groups, although they were distributed from kindergarten through grade twelve. The specifics of research design beyond experimental and control group comparisons are not detailed in the report. The results reported were as follows:

1. Students exposed to career education had more knowledge of the nine career clusters dealing with occupations in Arizona used in this effort than did control group students. This was true in both primary and secondary grades.

2. Career education students were better able to recognize and list interpersonal factors related to jobs, recognize their personal characteristics related to jobs, relate specific occupations to some larger grouping, recognize decision-making abilities, and comprehend the free enterprise system than were control group students.

3. Students exposed to career education as compared with control group students have knowledge of a wider range of occupations, more ability to evaluate skills needed for preparation, and more self confidence that their goals are realistic and obtainable.

4. Career education activities differ in their influence on students. Influence as used here seems more tied to student interest, preference, and involvement than to a process relationship to specific student behaviors. Using a scale of maximum positive influence +10 to maximum negative influence -10, the following influence levels were attributed to career education components:

    ·Field trips--+8
    ·Career education kits/games--+6 or +7
    ·Career education films/tapes--+5 or +6
    ·Guest speakers-- -3

Somewhat different results were reported in a multiple component career education program for persons in rural areas (Center for Studies in Vocational and Technical Education, 1975). Involved were specific project staff, multimedia elements, a project newsletter, as well as television and radio publicity to gain public support. This program also used an unspecified experimental/control design to facilitate the following objectives among students in grades three, six, nine, and twelve: prepare for employment, upgrade capabilities of those employed, assist in self-evaluation, encourage education related to employment, and provide leadership. The results were:

- *Self-Awareness* (which included measures of self-acceptance, self-security, social maturity, peer affiliation, achievement motivation). Grade 3: no difference between control/treatment groups. Grade 6: only one variable approached significance ($p < .06$).

- *Career Awareness* (which included measures of identification recognition, multiple discrimination). Grade 3: no significant differences found. Grade 6: significant difference in favor of treatment group ($p < .05$).

- *Career Development Assessment* (which included assessment of ability to pursue career based on occupational characteristics, occupational preparation and occupational experience). Grade 9: career planning involvement significantly greater for treatment than control group ($p < .0001$). Grade 12: no significant differences.

Concord, New Hampshire, also implemented a multicomponent career education program (UNCO, Inc., 1975). Areas of emphasis were values clarification, self-awareness and occupational awareness achieved through infusion, field trips, affective and decision-making kits. Evaluation was done by a questionnaire to teachers. From a staff of 400, 78 (20 percent) completed the questionnaire with the following results:

1. Career education would help in the all-around education of students (75 percent agreed).

2. Students needed career education (82 percent agreed).

3. Program was extremely effective (68 percent agreed).

4. Workshops were extremely effective (63 percent agreed).

5. Strengths reported were: had an impact on nearly all school students, provided a much-needed humanistic service, created an awareness within the students which no other project had done, met students' need to get out of school and do some "real" things, was good for the students.

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6. Weaknesses: need for specific ways to integrate material into curriculum, need for community awareness, need to make possible dropouts aware of the program, need to meet with career education representatives more often, was a poor substitute for basic education, had too short a duration of funding, too few using the materials available, small staff-large district.

The Weatherford Independent School District, Texas (1975), implemented a program from kindergarten through grade twelve which involved resource people, on-site visits, career guidance and counseling, curriculum guides. The goals of the program included, from kindergarten to grade seven: good work attitudes, self-awareness, positive attitudes toward the world of work; grade 8: a better understanding of how school is related to work; grades nine to twelve: exploratory/employability skills. Students were divided into experimental and control groups up through grade six. It is not clear whether experimental and control groups existed beyond that point. It is not clear how many were involved in each group but the total numbers of students involved in evaluation activities were: 915 in grades kindergarten through three, 929 in grades four through six, 1,054 in grades seven through nine, and 844 in grades ten through twelve. Evaluation data were obtained through use of the Career Education Questionnaire and the Career Maturity Inventory. Results reported were:

- *Third and Sixth Grade:* Increased exposure to career education materials does provide improvement in understanding of major duties, abilities, working conditions, and life styles associated with different occupations. No probabilities cited.

- *Sixth Grade:* No significant difference between experimental/control students on the Career Education Questionnaire.

- *Eighth Grade:* Students scored higher than the national gradewise mean on all but one of the subtests of the Career Maturity Inventory. Not clear where the control group students scored.

- *Ninth Grade:* Students scored higher than the national gradewise mean of all subtests of the Career Maturity Inventory.

- *Twelfth Grade:* Students scored higher than the national gradewise mean on the Career Maturity Inventory on all but one subtest.

The Wisconsin State Board of Vocational Education's final report (Lehrman, 1974) on the research and development project in career education discussed that state's comprehensive implementation of career education including: integration of career education into existing curriculum, guidance and counseling, comprehensive orientation to planning for high school, collections of career materials, parent/teacher awareness. The evaluation was conducted through a series of questionnaires completed by students in grades kindergarten to twelve, parents, teachers, and administrative personnel. Specific questionnaires were:

1. General Education Workshop Questionnaire.
2. Pupil Questionnaire (Fourth and Eighth Graders).
3. Student Questionnaire on Guidance Services (Tenth and Twelfth Graders).
4. Parent Questionnaire.
5. Teacher Questionnaire.
6. Career Education Questionnaire.
7. Student Follow-up Questionnaire.

The numbers of responses to these questionnaires varied widely. For example, fourteen persons responded to the General Education Workshop Questionnaire, 76 percent of 422 parents responded to the Parent Questionnaire, thirty-nine teachers in grades four and eight responded to the Teacher Questionnaire, 86 percent of 620 students responded to the Student Follow-up Questionnaire.

The results reported were diffuse as they evolved from the various instruments and subject perspectives. They included:

1. Students indicated that participants should be screened for career education and their progress monitored (followed up).

2. The modal student response to the program was "good." Students responded favorably to all items dealing with program components although males preferred that more films be included than did females.

3. Some observers contended that no specific results could be drawn about the program because of too much variability in class composition. (It was not clear just what this reference meant.)

4. Parents did not indicate much specific knowledge of career education, although they reported talking a lot about it and having improved impressions of teachers and counselors over the previous year. Parents felt that students should have a usable skill upon graduation.

5. Teachers reported that newsletters and brochures were important sources of information. Most felt that workmen should come to school to talk about their job. Most felt that students did not need a college degree. Two-thirds felt students should leave

school daily to work and that students should have a paying job before graduation.

6. The results of the Career Education Questionnaire were not considered to be reliable, but the finding of most significance was that parents were the most influential factors in children's career development.

7. Students reported no program improvements were needed, but that they needed help in interpersonal interactions.

The Carver/Lawless, Louisiana, Career Education Program emphasized career awareness and information through using the World of Work program, provisions for semiskilled training and economic supplements, on-the-job experience, guidance and counseling, and multimedia information dissemination (Vogel & Stumpf, 1975). The program was integrated into the elementary and middle schools. Many of the students involved in the program, particularly at the middle school level, were economically disadvantaged. A variety of instruments were used on a pre/posttest basis to obtain program evaluation data. Included were a unit outline method for the World of Work program, a picture identification test, the Work Habits Rating Scale, and the Attitudes Toward Work Questionnaire. In some of the areas of project concern, criterion targets were established to test the program's impact. Results were:

1. In the elementary school, the mean pre/post increases in occupational knowledge as measured by a picture identification test were less (3.57) than expected (5.).

2. Criterion expectations for pre/post improvement in work habits as measured by the Work Habits Rating Scale did not occur. However, the anticipated improvement in attitudes toward work as measured by the Attitudes Toward Work Questionnaire did occur.

3. In the middle school population, 91.4 percent of the students stayed in the career education programs provided for them; 90.54 percent of all potential dropout students completed the course of study.

4. The criterion goals, that 90 percent of all students would obtain a 70 percent or higher on the knowledge tests and on the performance tests, were not met. Only 77 percent of the students passed the knowledge and 81 percent passed the performance.

The City of Syracuse (Holder et al., 1973) reported that the results of a multicomponent career education effort encompassing elementary and secondary schools yielded many positive outcomes. It is not clear how these findings were obtained, although some were from questionnaires and some were gathered on a pre/post basis. They included for students exposed to career education such findings as the following:

1. Teachers rated students' motivation high.
2. Senior high school student grades improved with career education contact.
3. Fifth graders showed gains in awareness of world of work.
4. Sixth graders' awareness of career concepts, career ladders, career areas, necessary skills all showed increase.
5. Business and industry continued support in "career days," field studies.
6. Parental involvement increased.
7. Seventh graders' attitudes toward career planning increased positively.
8. Eighth graders showed increased familiarity with exploration of career clusters.
9. In ninth grade, 85 percent of all students had written plans for career education.
10. In junior high school, teachers, parents, industry made an average of 2.2 requests for career education material.
11. Ninety-seven seniors participated in an experimental mini-course and expressed favorable remarks about it.
12. Occupational Learning Centers for potential dropouts produced increased achievement in mathematics (1.6 grade levels) and in reading (1.4 grade levels).
13. Over 90 percent of all the potential dropouts exposed to career education remained in school.

Cashmere Consolidated School District in Washington State (1974) evaluated their multicomponent school-based program by studying staff reactions to career education on a locally developed questionnaire and student reactions by several locally devised questionnaires and changes on the Ohio Work Values Inventory. The career education program involves career education curriculum materials and activities infused into traditional curricula, counseling, and teacher inservice.

Teacher responses to career education varied. It was obvious that teacher participation and interest differed greatly. Some teachers participated in career education to a limited degree; some did not participate at all. Some teachers used career education materials in an integral way with other subject materials; others taught it as a separate unit; others felt that it would be best taught in social studies. More specifically:

1. No teacher felt that the school district should be doing less in career education; 50 percent said they should be doing more.
2. Eighty-five percent of the teachers felt that all students should participate in career education.
3. Eighty-nine percent of the teachers said that career education helped to identify potential dropouts.
4. There were mixed feelings about the effect of counselors, with some saying the classroom teacher should be the counselor.
5. A majority of the staff gave career education a positive grade.
6. Ninety-five percent of the teachers said that career education and vocational education go hand in hand.
7. Forty-five percent of the teachers found the career education program complementary to the other programs.

What about student responses to the career education program? Using a nonspecified experimental/control group design, various homemade pictorial or survey instruments and the Ohio Work Values Inventory, the following results were reported:

- *Kindergarten through Third Grade* -- Experimental students were found to be significantly more aware of occupations than were the control group students.

- *Fourth Grade* -- No conclusions could be drawn.

- *Fifth Grade* -- Trends were positive but not significant for the experimental group.

- *Sixth, Seventh, Ninth and Tenth Grades* -- No results could be obtained due to lack of construct validity of career questionnaire.

- *Eleventh Grade* -- Slightly higher, but apparently not significant, scores were obtained by the experimental group on job expectations and job happiness.

- *Senior Results* -- Seemed to be somewhat greater clarity about future plans.

Norwalk, Connecticut's (1975), career education effort in the senior high school included curriculum infusion, community economics, job visitations, work experience, and guidance and counseling. The evaluation of this effort in the senior high school was comprised of assessing, on an experimental (198 students)/control (160 students) basis, those differences in planning orientation, knowledge of resources for exploration, information, and decision making measured by the Career Development Inventory. Using analysis of variance procedures, the findings indicated that there were significant differences on each of the dimensions in favor of the experimental group: Planning Orientation ($p < .01$); Resources for Exploration ($p < .01$); Information and Decision Making ($p < .05$); Total Career Development Inventory Score ($p < .05$).

The Highline School District in Washington State (Yormack, 1975) reported on a particularly comprehensive career education program including the use of the *Bread and Butterflies* series in the elementary school, a work samples lab in the junior high school, curriculum infusion, the availability of audiovisual materials and commercially produced kits, guidance and counseling, publication of newsletters, and presentations by resource persons. Their research design involved a post comparison of experimental/control groups in grades kindergarten through three, four through six, seven through nine, and ten through twelve using several different instruments. The results were:

1. *Kindergarten through Three:* Career Knowledge Test--no significant differences.

2. *Four through Six:* Perceived Responsibility Scale--no significant differences.

3. *Seven through Nine:* Ohio Vocational Interest Survey--no significant differences.

4. *Ten through Twelve:* Career Development Inventory--no significant differences.

Olson (1974) carried out a comprehensive evaluation of elementary and secondary career education in Lincoln County, West Virginia. He attempted to relate student needs, fears, likes, dislikes, abilities, aptitudes, and limitations to such career education mechanisms as field trips, hands-on activities, multimedia materials, guest speakers, role playing, work experience, student research. In eight elementary schools, 240 experimental and 240 control group students were identified. In grades seven to ten, 160 experimental and 160 control group students were identified. Both multiple regression and covariance analysis were used to assess effects upon scores on the California Language Achievement Test, California Mathematics Achievement Test, the Occupational Awareness Tests, and the Career Maturity Inventory. The results were:

1. There was a significant difference in language achievement at grades one through six in favor of experimental students. The adjusted posttest means for the experimental group were 11 percent higher than the adjusted posttest means for the control group on language achievement.

2. There was a significant difference in mathematics achievement at grades one through six in favor of experimental students. The adjusted posttest means for the experimental group were 24.5 percent higher than the adjusted posttest means for the control group on mathematics achievement.

3. There was a significant difference in occupational awareness at grades one through six in favor of experimental students.

4. No significant difference was found in career attitude maturity in grades seven and eight between experimental and control students.

5. No significant difference was found in career maturity competence in grades seven and eight between experimental and control students.

6. Significant differences were found between experimental and control students in career attitude maturity and competence in grades nine and ten.

Natchitoches Parish, Louisiana (Roberts, 1975), evaluated its multicomponent program, which included counseling and guidance, infusion, field trips, resource speakers, audiovisual aids, role playing, bulletin boards, group discussions, and demonstration teaching. These efforts were directed to facilitating student intrapersonal skills, interpersonal skills, problem-solving skills, and developmental skills in grades kindergarten through fourteen. The specific number of students involved was not given. The research procedures included comparing posttest scores on various instruments to base-line norms attained by previous year's students at the same grade level before the career education effort was introduced. The instruments used were the Coopersmith Self-Esteem Inventory, Career Education Questionnaire, and the Career Maturity Inventory. The major results reported are as follows:

1. *Elementary School.* At grades three and six, there were no significant differences in the scores on the Coopersmith Self-Esteem Inventory between the 1973-74 baseline and 1974-75 career education group. On the Career Education Questionnaire, the criterion objectives of knowledge of work duties, job requirements, life styles, or work conditions were not achieved for either third or sixth graders.

2. *Junior High School.* The behaviors measured by the Career Development Inventory--Planning Orientation, Resources for Exploration, Information and Decision Making--were not achieved by the experimental group in significantly different ways from the baseline group. On the Career Maturity Inventory (CMI), the program objectives dealing with knowledge of job duties and pay, entry requirements and factors affecting work success/satisfaction were not achieved by the experimental group more than the baseline group. Experimental students did not differ from the baseline group on knowledge of career planning. Changes on positive attitudes toward work as measured by the CMI were mixed and hard to interpret in relation to baseline data.

3. *Senior High School.* The experimental group (1974-75 school year) was significantly lower on attitudes toward work as measured by the attitude scale of the CMI ($p < .05$) than were the baseline group of the 1973-74 school year. There were no significant differences between these two groups on the CMI competence subtests dealing with occupational information, with self-appraisal, or with career planning.

Several confounding problems seemed to operate in the evaluation. It appeared that random samples of students whose teachers did attend career education workshops were pooled with random samples of students whose teachers did not attend such workshops. Thus, whatever effects of career education might have been present were probably washed out. In addition, it was not clear how many of the students studied had participated in which or all elements of the career education program. There were no pre/posttests of experimental students to determine their changes or their similarity to the previous base line group on which comparisons were drawn.

Wyoming (1974) evaluated the effects of a model system of occupational education in its public schools. This model included infusion of career education concepts into existing curricula, actual career education courses, exploration by students of occupational clusters, the provision to students of job information and opportunities for cooperative education. The model was used from kindergarten through grade fourteen, but no specific number of those involved by grade level or in total was reported. The evaluation procedures included testing, interviews, and observations of students. The basic design involved assessment of pre/post changes by specific career education objective. The results reported include:

1. In grades one through six students showed large increases in the number of occupations they could list.

2. In grades one through four students showed a positive increase in the number of work habits they could list; in grades five and six students decreased pre/post in the number of work habits they could list.

3. At the elementary school level, no changes in academic achievement were found which could be attributed to career education.

4. At the elementary school level, posttest scores on a work attitude scale showed positive gains on most items.

5. At the secondary school level, posttest scores on a work attitude scale did not reflect positive gains over pretest scores.

6. The dropout rates in the junior high school increased from 1.0 percent to 2.4 percent and in the senior high school dropped from 7.6 percent to 6.5 percent during the two years of the evaluation.

7. When interviewed, some students indicated that the career education courses were not as useful as they should have been, such courses should not be given to college bound students, career education courses have received too much emphasis, and career education students felt they were regarded as inferior by other students.

Omvig, Tullock, and Thomas (1975) examined the effects of a multicomponent career education effort on the career maturity of sixth and eighth graders (2,600 students per grade). Students were randomly assigned to experimental (n = 240) and control (n = 240) groups. Pretreatment and posttreatment information was obtained using the Career

Maturity Inventory. Statistical procedures involved a 2 x 2 factorial analysis of variance design. No sex differences were found at either sixth or eighth grade in career maturity. The career education group consistently scored significantly higher in career maturity on post scores than did the control group. In particular, significant differences were found in occupational knowledge, occupational planning, and in the attitude scale.

The University of West Florida (Perkins, 1973) reported the comprehensive evaluation of a multicomponent career education program in Orange County, Florida. This program included the use of career oriented instructional materials, work experience, job training, and guidance and counseling. Each educational level of the career education program from kindergarten through twelve had specific purposes to be achieved. They included:

·*Elementary, grades one through six*
1. More knowledge of careers.
2. More positive work concepts.
3. More productive work habits.
4. Greater motivation.
5. More career awareness.

·*Junior High School, grades seven through nine*
1. Entry level job skills.
2. More productive work habits and traits.
3. More knowledge of career opportunities.
4. Greater motivation toward work.
5. More career exploration activities.

·*High School, grades ten through twelve*
1. Entry level job skills.
2. More knowledge of career.
3. Positive attitudes toward career.
4. Enroll and complete more job skill courses.
5. Greater motivation.

The design included pre/post testing of experimental and control groups. At the elementary school level, there were 240 experimental and 240 control students; at the junior high school, there were 120 experimental and 120 control students; at the high school, there were 50 experimental and 50 control. Eight self-developed and three published instruments were used for data collection. The results were:

1. *Elementary Level.* There were no differences between the experimental and control groups on knowledge of careers, positive work attitudes, or attendance. Changes in productive work habits were apparently

not assessed. Experimental group did participate more than controls in exploratory behavior.

2. *Junior High Level.* There were no differences between experimental and control groups on productive work habits, traits and attitudes, knowledge of careers, or more career exploration activities. There were statistically significant differences between experimental and control groups on school attendance.

3. *Senior High School Level.* There were no differences between experimental and control groups on knowledge of careers or on career related activities. No results were reported on skills and knowledge. There were statistically significant differences between the groups on attitudes toward employment ($p < .05$) in favor of the experimental group. There were no differences between the groups on reading and mathematic achievement but there were statistically significant differences on vocabulary and problem solving in favor of the experimental group.

Bowling Green, Kentucky (Newton, 1974), evaluated its comprehensive career education program by involving parents, teachers, administrators, and students at all grade levels in a posttest design. Interviews and two instruments were used to collect the data: the Parent Survey About School and a Career Education Interview Guide. A large number of results were reported. The major ones include:

1. Teachers reported that inservice workshops providing multisession small groups or in combination with multisession large groups were most successful. Most teachers reported that other teachers (66 percent) or administrators (50 percent) were the most successful type of resource person for increasing their knowledge and understanding of career education. Workshops/inservice were seen as the best way of increasing knowledge of career education by 72 percent of the teachers, 80 percent of the counselors, and 50 percent of administrators. Eighty percent of teachers said they involved parents in career education. Parents were mostly involved (71 percent) as resource persons.

2. Counselors typically indicated (80 percent) that their work had increased since career education.

3. Administrators indicated that most local money was used for field trips (75 percent) and for purchase of resource materials.

4. On a twenty-point test of knowledge about career education the following rankings were obtained: teachers 15.81, counselors 18, administrators 18.13.

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5. On a 100-point test at attitudes about career education, the following rankings were obtained: teachers 80.91; counselors 93.75; administrators 93.50.

6. A definite positive correlation was found to exist between knowledge of and attitude toward career education (p <.01).

7. Sixty-five percent of the parents were aware of career education: 82 percent said it was good, 1.6 percent said it was bad; 17 percent had no feelings about it; 98 percent of parents said children should begin to make career choices while still in school; 98 percent of parents said children would make better choices if they had more information; 69 percent of parents said schools did not give children enough help in career planning; 74 percent said vocational courses are developed for average students; 2.5 percent above average; 20.7 percent below average.

8. Students reacted to career education in a number of ways. Seventy-four percent were aware of career education in their school, 26 percent were not; 48 percent had a favorable attitude toward career education, 33 percent were neutral; 57 percent of students said jobs were worthwhile; 35 percent said there was a need for more field trips; 28 percent said faculty changes must be made; 17 percent said subjects should be more interesting.

9. After all the complexities of this career education were analyzed, students were asked who was most helpful to them in establishing post-secondary plans. The most frequently cited person was their mother.

The State of Rhode Island (Finley, 1975) evaluated eight career education programs in that state. One hundred forty-six teachers and an unspecified number of administrators engaged in teacher observations and unstructured interviews as well as completed evaluation forms. Among the findings were: 96 percent of all teachers involved felt that their program had some or much success; only teachers in grades kindergarten to four felt little success was gained. The programs with the most success had attempted total career education conceptual integration within their existing curricula. The author also felt that teachers were more involved in such total efforts. Projects reporting minimal success depended on the use of published materials and were piecemeal in fashion. They were supplemental to the curriculum and had little effect.

In Chester, Pennsylvania (Education Research and Development Associates, 1975), a comprehensive career education project--including infusion, staff development, resource people, resource center--was evaluated by pre/post testing of students using several locally developed as well as published instruments including the McDaniel Inferred Self-Concept Scale, Career Development Inventory, Career Education Questionnaire as well as questionnaires for graduates, counselors, and co-op directors. The results were as follows:

1. *Grades Three and Six*--Significant improvement in self-concept. Grade 3 (p .01) Grade 6 ($p < .05$)

2. *Grade Nine*--Significant improvement in planning orientation (p .01) but no significant improvement in knowledge of resources for exploration or information and decision making.

3. *Grade Twelve*--No significant pre/post differences were observed on any of the scales.

4. *Grades Three and Six*--Significant pre/post differences ($p < .01$) were obtained on the Career Education Questionnaire.

5. *Counselors and Co-op Directors*--One hundred percent believed that students under career education had a greater chance to prepare for work; 60 percent feel that students are a great deal more knowledgable about job requirements; 92 percent felt that school staff is more aware of career education.

Pennsylvania has reported an evaluation (Ciavarella et al., 1974) of its four demonstration projects. Each one is unique in content and strategy and uses different evaluation procedures. The results will be reported by individual project as much as possible.

The Ebensburg Project involves high school students participating in a highly individualized program of job skills and career-oriented activities. Three instruments were used: the Career Maturity Inventory, School Morale Scale, and the Career Decision Questionnaire. The results reported were as follows:

1. The Career Maturity Inventory--Without specifying numbers of students involved or design elements, it is indicated that the project has allowed the students to achieve at a level of career maturity beyond what their academic abilities would warrant. On three of six subscales, students obtained scores above the national gradewise average.

2. School Morale Scale--Indicated that students were more satisfied with the school environment.

3. Career Decision Questionnaire--Found that career decisions are influenced more by students' families than by teachers or counselors.

The Crawford County Project involves students in grades kindergarten to six. For purposes of this evaluation, students were assigned to experimental and control groups at each level: kindergarten to second, third to fourth, and fifth to sixth. Using the Career Awareness Inventory, it was found that experimental students were higher at all three levels than control students ($p < .05$). On the AWAKE Questionnaire it was found that the program is generally viewed favorably and teachers are seen as innovative and providing for student needs. Teachers' reports also indicate that students are increasing self-concept.

The Cook Junior High School Project in Philadelphia was evaluated using an experimental group of 133 students and a control group of 121. The evaluators reported that the experimental group showed a more marked increase on the Career Maturity Inventory attitude scale than did the control. This finding was not expressed in statistical terms, however.

The McKeesport Area School District, a kindergarten to twelve project, reported several different findings. Again an experimental/control structure was used to assess pre/post differences on several behavioral indicators. The results included:

1. *Third graders*. Experimental group was able to list more occupations than the control group ($p < .10$) but no differences were found in inferred self-concept and attitudes toward school.

2. *Fifth graders*. No significant differences in occupations listed but self-concept and attitude toward school were significantly different in favor of the experimental group. Overall, a significant decline was noted in the elementary school in nonproductive behavior.

3. *Junior high school students*

	p
·Self-concept attitude toward school	.05
·Career Maturity Inventory, attitude scale	NS
·Career Maturity Inventory, self-appraisal	.01
·Career Maturity Inventory, occupational information	.01
·Career Maturity Inventory, goal selection	.05
·Career Maturity Inventory, career planning	.05
·Career Maturity Inventory, problem solving	.01

These findings were all in favor of the experimental group.

A multicomponent career education project in Southeast Arkansas (Robinson, 1975) was evaluated using a formative pre/post test design with the data being collected and compared against selected predetermined standards. The numbers of students from whom the evaluative findings were obtained are not specified in the report, although the project was designed to span kindergarten through grade twelve. The elements of the project include an awareness emphasis in kindergarten through grade seven involving values clarification and decision-making activities. In grades eight to ten, curricular inclusion of career education concepts, resource people and field trips were accented as well as specific types of hands-on experience. In grades eleven and twelve, students could participate in cooperative education. Vocational counseling was also provided throughout the project. Data collection instruments consisted of several published instruments including the Career Maturity Inventory and the Assessment of Career Development. The results reported were:

1. Elementary school students significantly increased their awareness of and knowledge about work and their self-awareness.

2. At the eighth grade level the attitudes of students toward future jobs were significantly more positive but there was little effect on improving self-attitudes.

3. Eighth and ninth grade students showed little increase in their awareness of and knowledge about work.

4. Ninth grade students demonstrated no increase in decision-making skills, although eighth grade students made significant increase in this area.

5. Eighth grade students demonstrated a significant increase in positive attitudes toward work, but this effect did not occur with ninth graders.

A third party evaluation (Hardy, 1975) was reported which examined the Florida comprehensive program for career development, including kindergarten to university levels. The results cited in the report quoted here were obtained from 289 students selected from grades kindergarten to five and 224 students from grades six, seven, and eight. The design involved pre/post comparisons of experimental and control students using analysis of covariance statistical procedures. Data on participating students were obtained from several instruments: the Career Achievement Test, Teachers Inferred Self-concept Scales, Career Maturity Inventory, Rotter's Revised Scale of Locus of Control, the Student Information Sheet--Elementary/Secondary. The results reported are mixed. In one elementary school, twelve analyses were conducted and two were significant ($p < .01$). In these instances, race was the major source of variance, with Anglo students performing statistically better than Black students on the Career Achievement Test at grades kindergarten to two and three to four. In another elementary school, it was reported that fifteen analyses were run, with one significant ($p < .01$). In this instance, the kindergarten to two experimental group was found to perform significantly better than the kindergarten to two control group on the Career Achievement Test. This was the only instance in this school where the experimental/control groups showed differences. In a middle school in the sample, only two of forty-four analyses were found to be significant ($p < .01$). In these instances, Anglo students demonstrated significantly higher scores on the attitude scale of the Career Maturity Inventory than did Blacks, and females performed better than males on the Career Maturity Inventory competence subscale dealing with self-appraisal.

Among the most comprehensive and longitudinal evaluations of school-based programs are those conducted by Wellman and his associates (1972-1976) at the University of Missouri, Columbia. Two such evaluations will be reported here. One involves the Crisp and Liberty County Schools in Georgia. The other involved the Hazlewood School District in Missouri. In both instances the University evaluators and the local school districts were involved together in initial planning of the career education project and its evaluation, and this cooperation occurred over several years. The evaluation reports are as yet unpublished, but Dr. Wellman provided them for me.

The Crisp and Liberty County Projects

The basic purpose of the evaluation was to determine the impact of comprehensive career education activities on the career development of pupils from kindergarten through grade twelve. The evaluation process required that each of the career education goals be defined in terms of behaviors appropriate to the developmental level of each pupil group and that measurable outcomes or expectancies be specified. The behaviors identified were translated into behavioral objectives expressed as outcomes or expected outcomes of each group, and measures for each objective and each grade group were selected or developed to quantify all outcomes. A schedule was developed for the systematic collection, analysis, and interpretation of the outcome data. The full achievement of the outcome objectives projected for a goal was interpreted as full achievement of the goal. Failure to achieve the objectives was interpreted as failure to achieve the goal. The domains for which specific expectancies for each grade level were made include self-awareness, career awareness, decision making, career preparation, and placement.

At some grade levels, certain expectancies were not considered applicable. The evaluators' conclusions with respect to achievement of the 1972-73 goals were in abbreviated form as follows:

1. The Crisp County Project showed a 65.4 percent record of fully achieved goals with an additional 11.5 percent of partial achievement. A success record of 76.9 percent overall is truly outstanding in any educational project, particularly in the first year of operation and with the rigorous evaluation criteria used. The Liberty County Project had an overall success rate of 61.8 percent with a 34.5 percent record of fully achieved goals.

2. The success rate of these projects varied with the different grade groups or the maturity level of the pupils. Both projects were eminently successful in achieving their goals with the kindergarten through grade three groups. The projects were quite successful with the junior high school groups. The goal achievement record with the senior high school groups differed greatly between the projects. The Crisp County Project had quite an outstanding record at this level with three goals (career awareness, decision making, career preparation). The Liberty Project, however, obtained only partial success with career awareness at grade twelve, partial success with decision making at grade ten and full achievement at grade twelve, full achievement of career preparation at grade twelve. Both projects had partial achievement of placement goals at grades ten, eleven, and twelve. At the intermediate grade levels (grades four, five, and six) both projects had relatively mediocre results as did the Liberty group at the senior high school level.

3. Both projects had their best success record in the improvement of career awareness among their participating pupils. Career awareness was estimated from tests that could be classified broadly as measures of knowledge about careers, career opportunities, and the world of work in general. A worrisome question by the evaluators was whether the programs were that much more successful in this goal area or whether they measured the outcomes more effectively.

4. The area of career self-awareness produced the clearest outcome differences between grade groups. Both projects fully achieved their goals in this area with the pupils in grades kindergarten through four, and neither project achieved this goal with any of the upper grade groups. The goal areas related to career decision making and career preparation were quite adequately achieved by the Crisp County Project in the primary grades and the senior high school groups, and mixed results were shown in the middle grades. The Liberty County Project had its lowest level of success in these goal areas where quite mixed and inconsistent outcomes were observed.

In 1973-74, the Crisp County Project had a record of 67.3 percent for fully achieved goals over the five goals for the thirteen grade groups. They had an additional 13.5 percent that fell in the partially achieved category. Thus, in 80.8 percent of the fifty-two goal analyses the Crisp County Project either fully or partially achieved the goal. This was a 3.9 percent increase in goal achievement over the 1972-73 project year. The Liberty County project had an overall success rate of 63.5 percent with a 42.3 percent record of fully achieved goals. This represented an improvement of 1.7 percent in goal achievement over 1972-73 and--perhaps more significantly--an increase of 7.8 percent on fully achieved goals.

In 1973-74, the success rate of the projects differed from grade group to grade group or with the maturity level of the pupils. Both projects were highly successful in the lower elementary grades. The goal achievement record with the junior high school pupils was quite good, particularly in grades seven and eight. The goal achievement record with the intermediate grade groups (four, five, and six), and with the senior high school pupils differed greatly between the projects. Differential success was observed, for the second year, among the goal areas and between the two projects. For example, the self-awareness goal area showed significant improvement over 1972-73 in both projects. The goal area of career awareness continued to be a major area of strength in the Crisp County Project, but the Liberty County project showed a loss over 1972-73 from 76.9 percent success to 50 percent success. Both projects had a decrease from 1972-73 to 1973-74 in the success rate for achieving the decision-making goal. The achievement of the career preparation goal improved in Liberty County and remained about the same in Crisp County. The Crisp County Project showed significant improvement in achieving the placement goal and the Liberty County Project had about the same record as in 1972-73.

In 1974-75, several data collection changes were made and the Career Maturity Inventory and the Ohio Trade and Industrial Achievement Tests were added in grade twelve. The overall record of goal achievement was mixed in 1974-75. The Crisp County project decreased in goal achievement by about 12 percent over the 1972-73 and 1973-74 project years. The Liberty project represented an improvement in goal achievement over 1972-73 and a slight decrease over 1973-74. The success rate of the projects continued to differ from grade group to grade group or with the maturity level of the pupils. The patterns of where these differences occurred remained similar to the first two years. The self-awareness goal area showed significant improvement in 1973-74 but moved back again in 1974-75. Career awareness continued to be a major area of strength in both projects, but the Crisp County project showed a loss over both of the two previous years. Both projects had a substantial increase from the previous two years in the success rate for achieving the decision-making goal. In both projects the career preparation goals were lower than in either of the previous two years, and the achievement pattern of the placement goal was up for 1974-75 in Crisp County but about the same in Liberty County.

In 1975-76, the overall record of goal achievement in both projects was somewhat less than in previous years. The success rate of the two projects continued to differ from grade group to grade group or with the maturity level of the pupils. Both projects continued to be very successful in the lower elementary grades. The goal achievement record with the junior high school pupils, which had been quite good, declined in 1975-76. The Crisp County project had 50 percent and 75 percent success rates in grades seven and eight, respectively, compared to 100 percent the previous year. Liberty County failed to achieve its objectives in either of these grades during 1975-76. The goal achievement record with the intermediate grade groups (four, five, and six), which had been relatively weak in both projects during the previous years, showed some improvement in 1975-76. Both projects were reasonably successful in achieving their goals at the eleventh and twelfth grade levels with results that were reasonably comparable to the first three years. The differential success among goal areas and between the two projects remained similar to 1974-75.

The Hazlewood Project

In this project which combined the efforts of the University of Missouri team and the Hazlewood, Missouri School District, the basic purpose of the evaluation was to determine the impact of comprehensive career education activities on the career development of pupils from grade one through grade eight (Wellman et al., 1973-76). The evaluation process, like that in the Liberty and Crisp County Projects previously discussed, also required that each of the career education goals be defined in terms of behaviors appropriate to the developmental level of each pupil group and that measurable outcomes or expectancies be specified. Four broad goals were specified for the project. Goal one relates to the development of an awareness of the basic characteristics that describe the world of work. Goal two states that the pupil will become aware of the characteristics of job clusters. Goal three states that the pupil will develop knowledge and understanding of specific jobs in the full range of job clusters. Goal four states that the pupil will become aware of self-characteristics related to career development.

The 1973-74 results indicated that goals one and two were achieved for all grades. Goal three was almost fully achieved for grade seven with the exception of one job model inventory; however, goal three was not achieved for grade eight. Goal four was achieved in grades one, three, and four, but not in any of the other grades. The achievement of objectives in goals one, two, and three indicated that when the outcome was related to knowledge about occupations and job clusters, the project was successful. Goal four relates to the development of pupil self-awareness related to career development. The primary emphasis for this goal in the lower grades was the development of an awareness of the ways people are alike and different, and the pupils did reasonably well in achieving the expected outcomes. The emphasis shifts in the middle grades to relating personal characteristics to occupational characteristics, and the pupils at this level showed little evidence of change. The evaluator believed that the major problem here was that the project probably did not emphasize what was being measured in this goal area at the middle grades level.

The 1974-75 results indicated that the project was very successful in achieving its stated objectives. Out of twenty-eight objectives for the various grade levels, twenty-three were considered to have been achieved by the established standards. Goal four was met by grades one, three, four, and five but not by grades two, six, seven, and eight. Matched control groups were introduced during the 1974-75 school year and compared with the project pupils on objectives 1.3. A (grade three), 2.4.A (grade four), 2.5.A (grade five), 2.6.A (grade six), 3.7.A (grade seven), and 3.7.B (grade eight). The project pupils in grades three, four, five, and six achieved these objectives with significant gains from pretest to posttest. The control posttest scores, however, were not significantly different from the project group posttest scores in grades three through six. In grade seven, the project group posttest scores were significantly higher than control group scores on seven of the eight objectives. In grade eight the project group scores were significantly higher on five of seven measures.

In 1975-76, the Hazlewood Project was again considered successful in achieving its objectives. Out of twenty-eight objectives for the various grade levels, seventeen were considered to have been achieved by the standards established in the evaluation design. Goal one was fully achieved in grade one and partially achieved in grades two and three. Goal two was achieved in grade four but only partially achieved in grades five and six. In the latter two grades, students did not adequately demonstrate awareness of the characteristics of the job clusters required to meet the standards for the objective. On goal three, the seventh grade group achieved project objectives on seven of eight assessments and were significantly higher than the control group on all. The eighth grade group achieved criterion level on six of thirteen inventories and excelled over the control groups on eight of eleven comparisons. However, goal three was not considered to be met since the experimental group did not meet the criterion standard on the majority of assessments. Mixed results continued to be demonstrated on goal four. Students in second, sixth, seventh, and eighth grade failed to achieve the criterion standard for goal four.

Pittsburg, Kansas (1975), evaluated its career education programs by studying as an experimental group approximately 200 students randomly selected from six elementary schools and comparing them with students from a parochial school which did not have a career education program. The instruments used were the Self Observation Scales and the Career Maturity Inventory. At grade three the results of the Self Observation Scales showed that out of eighteen possible comparisons the experimental students exceeded the national norm of fifty and the average percentile score of the control group in twelve cases. At grade six the results showed that, of a possible thirty comparisons, the sixth graders exceeded the national average of fifty in twenty-four of thirty instances and the average percentile score of the control group in twenty-eight of thirty comparisons. In the ninth grade, comparisons of experimental and control students on the Career Maturity Inventory showed a statistically significant difference in favor of the experimental group only on knowing about jobs.

Solomon (1973) studied the effects upon the academic achievement and career development of a local career education program for forty fifth and sixth grade experimental group students as compared with forty fifth and sixth grade matched controls in another school. The Metropolitan Achievement Mathematics and Reading Test scores were among the criterion variables. No significant differences were obtained on these measures between the experimental and control groups, indicating at the least that the introduction of career education, including occupational and self-awareness components, did not retard academic achievement for these students.

The Muskejow and Muskejow Heights, Michigan, school districts evaluated their comprehensive (kindergarten to twelve) career education project (Felkey, 1975) using a self-developed inventory entitled the Occupational Development Inventory. Outcomes in twelve career education areas were compared for 207 experimental students from two target schools and two control groups: 256 students in grades four, seven, and ten in non-target schools and 257 students in target schools. The results were as follows:

1. Knowledge about the worth and importance of occupations--experimental students exceeded control students (p <.01). No significant differences were found between experimental/control students at either junior or senior high school levels.

2. Knowledge about the common characteristics of occupations--at the elementary level, control II had significantly higher means than either the other control or the experimental groups. No significant differences were found at the junior high or senior high school levels.

3. Knowledge about occupational opportunities--no significant differences among experimental and control groups at the elementary, junior high, or secondary school groups.

4. Self-appraisal of strengths, weaknesses, and interests--no significant differences among experimental and control groups at the elementary, junior high, or secondary school groups.

5. Knowledge of occupational words and terms--no significant differences among experimental and control groups at the elementary, junior high, or secondary school groups.

6. Perceptions of self as potentially more valuable and productive member of society--no significant differences among groups at the elementary or junior high school levels. Control group II had significantly higher score than the experimental students.

7. Aware of the importance of good interpersonal relationships in general and in job success--in the elementary school, control group II had significantly higher scores than either the experimental or other control. No significant differences at the junior high or senior high school levels.

8. Knowledge of educational avenues to career choices--elementary and senior high school levels, control II scored significantly higher than experimental or control group I. No differences at junior high school level.

9. Aware of the relationships between school subjects and the world of work--elementary and senior high school levels, control II scored significantly higher than experimental or control group I. No differences at junior high school level.

10. Knowledge of the effect of occupations on life style--no significant differences at elementary, junior high, or senior high school levels.

11. Awareness of occupational decision-making factors--no significant differences.

12. Parents will be significantly more aware of opportunities as measured by a Parents Questionnaire--

- Pretest = 459 questionnaires were mailed/19 returned.
- Posttest = 127 questionnaires were mailed/16 returned.
- No results reported.

EXPERIENCE-BASED APPROACHES

While still school-based the original Career Education Model II, the employer-based model, has evolved into the experience-based model. As such, its objectives have been to use the community as a learning laboratory both for skill building and for exploratory purposes. Findings have become available about several of the sites in which an employer/experience-based approach is in place.

In Tigard, Oregon, some students are engaged in individualized learning experiences in employer sites (Herron et al., 1973). The particular evaluation reported here involves twenty-nine high school students responding to a questionnaire and to the Career Maturity Inventory, as well as parent and employer appraisals of the program. The results are as follows:

- *Student Performance and Appraisal*--Only two students dropped out of the program, so holding power was considered good. Students in the program made no measured gains above nonprogram students in academic areas (reading, language, mathematics). On the Career Maturity Inventory, seniors demonstrated above average (grade-wide) scores on self-appraisal, occupational information, goal selection, planning and problem solving. The perspectives of the students about this career education model were that they liked the flexibility, program planning, feeling of accomplishment, the experiences and helping people outside the school. They disliked the amount of paper work involved, poor feedback system, outside evaluations, the feeling that they do not get proper credit for what they do, the lack of pay for what they do, and bad relationship with some employers. Students also reported missing their high school friends and activities, missed discussion of contemporary issues, and felt that they did not know what was going on at school.

- *Parent Appraisal*--The parents responded to a questionnaire. Most responses were favorable. They thought the program developed career insights, objectives, posthigh school training, cooperative teachers, learning by doing, good flexibility and freedom, special interest of faculty in their children, and that the program was a good alternative to traditional approaches. On the other hand, they did not believe the program provided enough control or that all students were responsible enough to participate, they believed that students fool around too much, lack discipline, and need to be better screened.

- *Employer Appraisal*--Students participating in the program were rated generally high by the employers, 3.66 on 5.00 point scale. On individual scales students were rated 4.5 on cooperation, 4.2 on concern for equipment, 3.87 as good team workers, 3.85 on shares interest, and 3.80 on completes tasks. They were less positively evaluated on good dress, 3.12, seeks feedback 3.19, and poise and self-confidence, 3.21.

In 1974 another study was made of this project (Tigard, Oregon, 1974). The questions and procedures pursued were a bit different, as were the results:

1. Data from pre/post assessments indicated that the employer-based career education students, even though further behind in the beginning, achieved relatively more gain in reading and mathematics than the control group. However, the differences were not significant. The report suggests that the career education students made significant progress in reading and mathematics from pretest to posttest but not in relation to control groups.

2. Students in the experimental group showed significant gain on the *personal adequacy scale* of the *Psychosocial Maturity Scale*.

3. On the *Semantic Differential* and the *Psychosocial Maturity Scale*, career education students showed pre/posttest gains in feelings about work.

4. Parent responses indicated generally positive feelings. The main strength of career education was teaching career skills and the main weakness was student self-management and academic development.

5. Employers felt that they were provided enough information to place the student, but that they did not receive feedback on what happens to the student after he or she leaves the site; in general, there was too little communication with the career education staff.

Another concentration of experience-based career education projects has occurred in the San Francisco area (Far West Lab, 1974a). The purpose of these, under the aegis of the Far West Educational Laboratory, is to provide a voluntary alternate program of comprehensive individualized learning focused on direct experience in community settings. In this evaluation, students in the experimental program were compared with their contemporaries in conventional programs in areas assessed by the

Career Maturity Inventory, Developed Abilities Profile, Iowa Tests of Educational Development, Program for Learning in Accordance with Needs, Personal Orientation Inventory, and "homemade" instruments. The major results included:

1. Experimental students (FWS) were not different from controls (OPS) in reading and mathematics achievement.
2. Experimental students, on a questionnaire, indicated generally positive judgments about the experience-based program; they felt more motivated to learn after entering the program and would enroll again. They were looking forward to having jobs, and they believed they could achieve. They also felt the counseling and guidance were worthwhile. More experimental than control students (75 percent to 29 percent) indicated positive opinions of their school. Some 81 percent of the experimental students had made firm plans for after high school. Only six percent of the experimental students had no plans compared with 21 percent of the control students who had no plans. About 81 percent of the experimental students felt that they had learned to express themselves better as compared with 57 percent of the control students.
3. Data from various instruments indicated that the experimental program compared with traditional curricula was more effective in creating awareness of opportunities, helping students assume responsibility, creating positive attitudes toward learning, developing decision-making ability and in strengthening ability to communicate with others. The experimental program was less effective than the traditional program in teaching students to perform academic skills, perform specific occupational skills, evaluate one's own work, develop positive attitude toward work, and be punctual and organize time.
4. Parents felt that children liked the experience-based program better than traditional programs, that their children were more motivated, that they would want their children to enroll again. The parents saw their relationship with career education staff as positive.

In another 1974 report (Spotts et al., 1974) on the Far West Experience-based Career Education Project, it was found that experimental students believed that the experience-based program was different from regular school with regard to providing more practical experience (50 percent), individuality (25 percent), the opportunity to learn at one's own rate of speed (31 percent), preparation for the outside world (19 percent), and more freedom (12 percent). Seventy-five percent of the experimental students as compared to 29 percent of the control students had a positive attitude about their school. More experimental students (75 percent) than control students (57 percent) felt that they had learned about getting along with people. Control students generally felt more positive than experimental students about their ability in academic areas (mathematics, reading, writing) although their perceptions about reading and mathematics were close.

The School District of Philadelphia was another site for the Experience-based Career Education model. According to Kershner and Blair (1975), this program included three types of instructional activities: (1) Students spent at least one day a week engaging in a wide variety of hands-on activities conducted at the work sites of over eighty participating industries, businesses, agencies, and unions; (2) Structured small group guidance sessions were held each week in addition to individual counseling that was provided; (3) For an hour and a half each day, students were given individualized learning opportunities in communication skills and mathematics. All participating students were administered a pre/posttest series of instruments including the Comprehensive Tests of Basic Skills. All tests run on the experimental group demonstrated a statistically significant (in this case set at a $p < .10$ level) growth in reading and mathematics. Analysis of covariance revealed no statistically significant differences on gains in arithmetic application.

The Far West Laboratory for Educational Research and Development (1974b) has reported on its efforts to determine the effects of an Experience-based Career Education Program on the academic achievement of high school students. The Iowa Tests of Educational Development were given to students in the program (experimentals) and to students not in the program (comparison group) on a pre/posttest basis. Thirty-six students at the tenth, eleventh, and twelfth grades constituted the experimental group. Analysis of covariance on the mathematics and reading scores indicated that there was greater growth on the mathematics test for the experimental group than for the control; the differences between the experimental and control groups were not statistically different for either mathematics or reading. However, a greater positive change in writing skills was observed for students in the experimental group (38 percent) than in the control group (14 percent). These judgments, incidentally, were corroborated by actual judgments of writing samples for both experimental and control groups by experienced test readers who rated each composition on three criteria: mechanics of writing, effectiveness of communication, and maturity or logical thoughtfulness.

RURAL/RESIDENTIAL APPROACH

Career Education Model IV located at Glasgow, Montana, was a comprehensive program including family management, child development, career guidance, and occupational skill training. The program was designed to have an impact on total family units rather than on the head of the household or a child in isolation. Families participating in the program were located in resident housing for as much as nine months depending on their specific goals and needs.

Since the students in Career Education Model IV were different from those in most other career education efforts nationwide, it is useful to consider their preadmission characteristics as identified by Wimp (1973). They include:

1. About 17 percent of families are single parent.
2. Average family size is 3.82.
3. About 83 percent of heads of household are married, 11 percent are divorced, 4 percent are separated, 2 percent are single and less than 1 percent are widowed.
4. Average number of children per household is two.
5. Average age of heads of household is 27.2 years.
6. Average age of spouse is 23.8 years.
7. Average age of children is 5.7 years.
8. Age range of heads of household is 15 to 64 years.
9. At time of entry, 32.4 percent of heads of households were employed full time, 8.4 percent were employed part time and 54.3 percent were unemployed.
10. At time of entry, heads of household had been unemployed on the average 19.6 weeks in the past year, and spouses had been unemployed 38.5 weeks.
11. Average monthly salary on jobs over past three years was $351 for heads of household and $224 for spouse.
12. Average family income from employment in past year was $2,756.
13. During past year 45 percent of families received welfare, 7.3 percent received unemployment compensation, and 13 percent received commodities, 59.9 percent received food stamps.

14. Average grade achievement in reading of heads of household is 9.7 years; spouses, 9.8 years. In math, heads of household, 8.4 years; spouses, 9.5. In language, heads of household, 8.9 years; spouses, 10.9. In study skills, heads of households, 8.3 years; spouses, 9.6 years (as measured by the Comprehensive Test of Basic Skills).

In a further evaluation of the general psychological characteristics of these students with which the program would have to deal, Conrad (1974) found the following using the Personal Orientation Inventory and the 16 PF:

1. Mistrust of spouses, friends, and staff.

2. Low self-concept and self-confidence.

3. Most take little initiative, particularly as regards dealing with "authority figures," and when they do take an initiative, they appear to be very fearful of punishment.

4. Feelings of inferiority rather than industriousness.

5. Intimate relationships have in general not been developed.

6. Less venturesome and more apprehensive than comparison "normal" populations.

7. Less conscientious and persevering than comparison "normal" populations.

8. Less capacity for intimate contact than comparison "normal" populations.

Career Education Model IV generated a considerable number of research reports and technical documents. Several which seem particularly pertinent to this paper are discussed below. Conrad and Manley (1975) attempted to determine if disadvantaged adults mature in their career attitudes after being enrolled in the awareness-exploration segment of the Career Guidance Component. The subjects included seventy-five adult students whose pre/posttest changes were measured using the Career Maturity Inventory. The test for repeated measures was the statistical procedure. It was found that there were significant gains ($p < .01$) from pretest to posttest.

Manley (1975) examined whether role-playing techniques used within a world of work segment designed to promote student job readiness and employability skills would affect attitude change. The subjects were fifty-three male and thirty-nine female disadvantaged adults. The design was a pre/post measure of attitude change on the Responsibility Index using t-tests for repeated measures as the statistical procedure. It was found that both male and female students became significantly less rebellious in their attitudes following role-playing, but no significant difference was found on the cooperation scale of the Responsibility Index.

Conrad, Myers, and Coyle (1975) focused on employment variables subsequent to participation in Career Education Model IV. The subjects were twenty-four disadvantaged families. A pre/post design using one group t-test procedures compared behavioral changes on the JDI, Minnesota Satisfactoriness Scales, Job Motivation Index, Work Alienation Scales, and Obeisance Scale. The results show that these persons increased the continuity and level of employment as well as attained increased income after the program.

Myers, Conrad, and Coyle (1975) also followed up the social and self-development of former Career Education Model IV students. In this study, twenty-three former students were interviewed at an average of ten months after finishing the program. Criterion variables considered were: (1) the self-concept and its various aspects, (2) anomie, (3) powerlessness, and (4) life success rating. The results indicated that: (1) male students following the program perceived themselves as subjectively more successful than a group of entering males; (2) self-concept, particularly family self-concept, is higher for exited students than for a representative group of enterers; and (3) current employment is at a higher level of socioeconomic status than were those positions held before entering the program. However, it was found that Career Education Model IV made little impact on social integration (anomie) or feelings of powerlessness.

CURRICULUM DEVELOPMENT

A great deal of exposition has been addressed to curriculum development required to accommodate career education concepts. This is true from kindergarten through grade twelve and into the postsecondary levels. It is true for virtually all subject content. However, few research studies can be found which deal with a tested need for, outcomes of, or comparative effectiveness of different approaches to curriculum development pertinent to career education. Studies which have been located are discussed below.

THE ELEMENTARY SCHOOL

Six elementary schools (kindergarten to three) in Portland, Oregon (1974), studied the effectiveness of an integrated career and consumer education and reading and language arts program. Twenty-two teachers, 22 principals, and 160 students were involved with the experimental prototype materials used. A questionnaire given to teachers and principals was used to identify the nature and the incidence of career and consumer education instruction. Particular assessments were made of the validity of using reading materials to teach career and consumer education concepts and future status of the materials used. The findings were not specifically reported but the conclusions were that career and consumer education and reading and language could be taught in concert. These study findings were accepted as verification for a correlated, interdisciplinary education of children in kindergarten through three.

Roseberry (1977) studied the impact of the *Bread and Butterflies* materials on the self-concepts of fifth grade students. The treatment consisted of ten hours of activities drawn by the investigator from the *Bread and Butterflies* teachers' guide. Lesson plans including these activities were used over a six-week period. A pre/post, experimental control design was used with 147 students in a metropolitan Atlanta school system. Three classes comprised the control group and three the experimental group. All were administered a standardized self-concept scale. Teachers in each group completed ratings and checklists concerned with student behaviors. An analysis of covariance was used to test pre/post changes among the groups. The results indicated that the subjects in the experimental group were not found to differ significantly from those in the control group on self-concept as a result of exposure to *Bread and Butterflies* lessons and activities. There was some tentative indication that boys benefitted more than girls from the treatment. Teachers felt that the *Bread and Butterflies* films are more effective than the lesson plan materials.

One of the objectives of the Cobb County, Georgia, Project (Smith, 1973) was to infuse a broad-based developmental, sequential career education curriculum into existing curriculum to increase academic learning. Part of the effort involved providing opportunities by which students could use subject matter in manipulative learning situations and to provide opportunities for students to observe the practical application of academic subject matter at community work sites. Student achievement among experimental and control students was based on scores on the Iowa Tests of Basic Skills for third, fourth, and sixth grade students. The overall means for the project schools were found to be equal to or higher than the overall means of the control schools at each of the three grade levels tested.

Bryant (1975) studied the infusion of a career education program in randomly selected schools in a ten-county area in North Central Texas. Seventeen fifth grade classes in five school systems were involved. In the larger school systems experimental and control groups were formed; in smaller school systems, matched controls across schools were used. In the experimental schools, teachers were given three days of staff development and teacher-developed career education curriculum guides for use in planning instruction in language arts and social studies classes. A total of 348 elementary school students were involved. The Comprehensive Tests of Basic Skills (Forms Q and R) were used as pretests and posttests in October and February of the 1974-75 school year. Analysis of covariance was the statistical procedure employed. Statistically significant differences favoring the experimental group were found on total achievement ($p < .001$), reading ($p < .01$), language ($p < .001$), study skills ($p < .01$), vocabulary ($p < .001$). Career education materials were not infused within the arithmetic curriculum, and no significant gains in this area occurred between experimental and control groups.

SECONDARY SCHOOL LEVEL

Brandywine High School in Wilmington, Delaware, reported going beyond curriculum course guides to provide career education (Markowitz & Haley, 1973). Two-week mini-courses were designed to allow students to explore a particular field of interest; courses varied in length from forty-five minutes to three hours. Each student must take a minimum of four and one-half hours of these courses each day. The program is called Interim. While it is in place between more traditional courses, seniors are given the option of participating in the Career Research Laboratory Program. They spend two weeks working on a one-to-one basis with a member of the occupation in which they are particularly interested. Each student is observed on the job once a week by a staff member. No salary is paid, and students pay their own lunch and other expenses.

Formal evaluation results indicated that more than one-half the students had 100 percent attendance during the program. Seventy percent of the parents felt the program was exciting. Feedback and informal evaluation indicated the value of the program was high and cost low.

In 1975, the Prince George's County, Maryland, schools studied the effects of integration of career education into the existing instructional program of selected schools (Upper Marlboro, Maryland, 1975). Teachers in each participating school determined how career education would be implemented in that school. Major emphases for integration were career knowledge, job attitudes, and community/parent visitation. A major question was what effect would such infusion have upon basic academic skills. Students in grades one, three, six, seven, nine, eleven, and twelve in fourteen schools were selected for study. Control schools were matched with experimental schools on five variables. In addition to the Iowa Tests of Basic Skills and the Iowa Tests of Educational Development, thirteen other data-gathering methods were employed. The analysis was essentially based on posttest findings only. Data were analyzed using one-way analysis of variance and two sample tests. The experimental samples scored significantly higher ($p < .01$) in reading and arithmetic than the controls. Exceptions were sixth grade reading and senior high language usage and social studies. The authors recommended that future evaluative efforts involve pretest/posttest design to assure that equivalent groups are used and that differences found on the posttest can be tied better to the effects of career education.

POSTSECONDARY SCHOOL LEVEL

Benson (1975) conducted a study throughout the Northwestern Region of the United States to determine the barriers which prevent applications, matriculations, and/or successful completion of allied health postsecondary education programs by Black Americans, Spanish-surnamed Americans, and Native Americans. The research content was the substance of a series of focused group sessions which involved students presently enrolled in programs of allied health, faculty, staff, and administrators of postsecondary allied health programs and minority professionals working in allied health occupations. The data were analyzed in two ways: (1) objective analysis of barriers as stated in the discussions and (2) content analysis of underlying thoughts and feelings. Pretest questionnaires (Boston Preliminary Questionnaire) determined the knowledge of health careers included in the allied health field. Group depth interviews were also used to assess group dynamics and content. The findings were that most minority students do not include the allied health fields in career selection because of no knowledge or inadequate knowledge of career opportunities available. The few who do enter find academic work difficult because of a sense of social isolation and an inability to find or get ancillary supportive services to deal with their environment. The faculty and staff saw students' problems as essentially statistical--how many could be enrolled and graduated.

Babcock and Kaufman (1976) compared the effectiveness for upperclass women students of a course entitled Career Environment and Individual Development or Individual Counseling. Two experimental groups and one control group were used. The career course group included eighteen upperclass women; the control group consisted of thirty-six women randomly selected from the student directory. The three groups were compared initially on college major, grade-point average, and number of counseling sessions prior to the study. No statistically significant differences were found.

The content of the career course focused on the extent to which work, jobs, and careers relate to the behavior of individuals. Although the course placed its major emphasis on values clarification, other topics included were decision-making, theories of occupational choice, job satisfaction, sources of occupational information, workpower projections, and career planning. The walk-in group received individual counseling from one of two career planning and placement counselors, one of whom taught the course. The students who were part of the study were not identified to the counselor. Both the career course and the individual counseling took place over a seven-week period.

Two instruments were used to evaluate the relative effectiveness of the career course and individual counseling. One was a self-report instrument adapted from the Career Development Inventory. It dealt with occupational preferences, self-knowledge and knowledge of career, and planning orientation. The second instrument, the Counseling Assessment Form, assessed information about educational and vocational opportunities, self-appraisal, setting up academic goals consistent with abilities and interests, and techniques of interviewing and writing resumes and cover letters. The results were:

1. Students in the class showed a significantly greater gain on self-knowledge and the relation of that knowledge to occupations than did students in the other groups.

2. Students in the class reported having engaged in a greater number of planning activities to become informed about careers than did the students in the other groups.

3. Students in both the class and walk-in groups reported greater gains in changes in expressed occupational choices than did the students in the control (no-treatment) group.

4. Students in the walk-in group reported much assistance in interviewing techniques and writing resumés and cover letters; students in the class reported no assistance in these areas.

5. Students in class reported much assistance in making a comprehensive self-appraisal, but the walk-in group reported little or no assistance in that area.

Ristau (1973) evaluated the use of an educational telephone network as an instructional delivery system for a graduate course in career education. The report describes a graduate extension course in which 164 teachers, administrators, and counselors from Wisconsin schools were enrolled. Professional advancement and assistance in developing career educational programs were the primary objectives of most of the enrollees. During the fall semester the course was taught using the Educational Television Network (ETN) statewide facilities which brought several groups together for the ETN class presentation and discussion. Nearly half the students evaluated the course as equal to or better than the traditionally taught extension course. Student achievement appeared to be excellent as confirmed by objective examinations.

TEACHING/COUNSELING METHODS

GROUP METHODS AND TECHNIQUES

Adams (1974) studied the effects of "preventative" group counseling at the point of student entry into college on subsequent student behavior in community college. Three types of counseling treatments were compared to a control group. Four groups of male students entering the community college directly from high school were selected for the study. Group I (the control group) was exposed only to the typical academic induction processes of the community college. Group II students were required to complete the ACT Guidance Profile prior to entry. These students were given an opportunity to review a list of possible majors rather than being asked to make a blind choice of major. They were assigned to an instructional division to be advised by counselors rather than by clerical personnel in the office of admissions.

Group III students were requested to come to the college for an on-campus interview with a counselor in addition to completing the Guidance Profile. Counselors assisted the students in planning the first quarter's work and they remained the student's academic advisor as long as it seemed mutually agreeable.

Group IV was the same as group III but the students were also enrolled in a group guidance class (Career Planning). Counselors taught the class. Every student was given the Kuder DD and the GATB and also became familiar with the use of the *Dictionary of Occupational Titles*, the *Occupational Outlook Handbook*, and other publications. As part of the course, role playing, interviewing, research papers, and planning resumés were accomplished.

The results were that students in the career planning group completed their first quarter at a higher academic level (g.p.a., 2.52) than students in the control group (g.p.a., 2.08). At the end of one full academic year, career planning students (g.p.a., 2.59) achieved significantly better ($p < .01$) than did controls (g.p.a., 2.09). Overall, career planning students had a more positive attitude toward college. They were more satisfied with their field of study, more certain about completing programs, and were making more appropriate educational/vocational choices.

Flake, Roach, and Stenning (1975) studied the effectiveness of short-term counseling (three individual sessions during a six-week period) on career maturity of tenth grade students. A random sample of eighty-seven tenth grade students were assigned to experimental and control groups on the basis of their pretest scores falling below the mean (immaturity) on the Career Maturity Inventory attitude scale and the self-appraisal subscale of the Career Maturity Inventory competence test. The statistical procedures included repeated measures analysis of variance. The results indicated that "short-term" career counseling does facilitate career maturity of tenth grade students as measured by the CMI. Counseling directed specifically toward reinforcing dimensions believed to be of a developmental nature results in more mature responses by subjects in a relatively short time span.

Swails and Herr (1976) did not find that short-term group counseling affected significant change in career attitude maturity. In this study ninety-six ninth grade students, forty-four males and fifty-two females, were assigned randomly to twelve eight-member groups. All students were pretested on the attitude scale of the Vocational Development Inventory (VDI), the forerunner of the Career Maturity Inventory. The twelve groups were then randomly assigned to one of four conditions: (1) relationship counseling, (2) group counseling incorporating the use of taped models, (3) game playing using the Life Career Game, and (4) control. Each group--with the exception of the control--had one fifty-minute session with a counselor for each of eight weeks. Pretest and posttest raw scores on the VDI were analyzed for each group using a 4 x 3 x 2 analysis of variance technique. None of the conditions produced significant growth on the attitude dimension of vocational maturity. However, two of the conditions--relationship counseling and gaming--exhibited changes in the desired direction.

Bergland, Quatrano, and Lundquist (1975) studied the relative effectiveness of three group counseling procedures with regard to assisting students to: (1) generate alternatives, (2) identify and obtain relevant information, (3) organize and evaluate the information, and (4) process the information to make tentative choices. The counseling conditions included the use of videotaped models, structured interaction among students, and a combination of a modeling procedure and structured participation of the students. The criterion variables were pre/post-test scores on an Attitude Questionnaire, the Vocational Information Survey, Parts I and II, the Career Planning Inventory, and the Vocational Planning Questionnaire. The analyses of covariance produced nonsignificant F-values. The results of the analyses of variance for the Attitude Questionnaire, the Vocational Information Survey Part II, and the Vocational Planning Questionnaire also showed no significant differences among groups. The means and standard deviations for all groups and all measures support the finding of no clear treatment effects.

Smith and Evans (1973) compared experimental group guidance and individual counseling as facilitators of vocational developments in undergraduate university students. The subjects included sixty-six freshmen and sophomore university students (thirty-six males, thirty females). Students who scored below the midpoint of the crystallization stage of vocational development as measured by Harren's Vocational Decision Checklists were designated as the treatment group. Twelve volunteer students and ten walk-in students (twelve males and ten females) were assigned to each of two treatment groups (group guidance and individual counseling). Twelve volunteer and ten walk-in students were also assigned to a control group for which treatment was delayed for five weeks. The group treatment involved a specially designed five-week program of independent assignments, a large group meeting, and small group counseling sessions. The students had to report back to the groups their explorations using the California Life Goals and the Kuder Occupational Interest Survey (DD). One hour per week for five weeks comprised the time frame. The individual counseling consisted of two to four meetings with a counselor. The students then took the California Life Goals and Kuder Occupational Interest Survey (DD), and the results were interpreted by their counselor. The students also had access to files, films, and other vocational development materials, but they were not required to report back the results of their explorations. Scores on the Vocational Decision Checklist and the Counseling Assessment Form were analyzed using multiple linear regression procedures. There were no statistically significant differences on vocational development in favor of the experimental group guidance procedures over individual counseling, and both were significantly different from the control group.

Westbrook (1974) compared three methods of group vocational counseling in helping students achieve preselected goals. The subjects included fifty-seven first-semester freshmen, twenty-eight males and twenty-nine females. The treatment sample consisted of sixteen males and twenty females who were randomly assigned to three treatment groups occurring over eight weekly sessions. Group I involved four weeks of test interpretation and four weeks of occupational information. Group interpretations were provided for a number of instruments, and students were encouraged to discuss their manifest needs. Group II focused on using members as case studies and helping them achieve their goals within the group. Members were encouraged to discuss their manifest needs. Test interpretations or emphases were not a part of the group. Group III was a control group which received pre/posttest instruments through the campus mail without any further contacts. Group IV received occupational information for the first four weeks and then test information and interpretation the second four weeks. Pretest, posttest, and follow-up assessments were made of scores on several instruments: (1) level of Decision-Making Scales, (2) my goals for group counseling, (3) the behavior survey, (4) Edwards Personal Preference Schedule, and (5) Kuder (Form CM). After four weeks the test interpretation-occupational group made rapid progress and reported more learning on chosen goals than on goals not chosen ($p < .05$). The case study group and the control group reported no significant learning. The occupational-test group reported more learning than the latter groups but less than the former, but these differences were not statistically significant. By the end of the program, the test interpretation-occupational group reported no significant learning, but the occupational-test group and the case study group reported statistically significant learning ($p < .05$ and $p < .01$ respectively). These results indicated that a process whereby subjects learn about themselves and the world of work before they receive test information facilitates significant learning. Also, a process in which the subjects learn about themselves and can request information about the world of work as they desire it provides significant learning.

LEARNING RESOURCES

In some ways the research literature available does not fall neatly into discrete categories such as learning resources relative to specific career education outcomes or comparisons among such resources in relation to current outcomes. But there are studies dealing with the effects of some learning resources that are worth citing. Before turning to these, however, it is worth reviewing the findings of Peat, Marwick, Mitchell and Company. This organization reported in 1974 on a survey of instructional materials for career education which was sponsored by the Office of Education. Approximately 3,000 materials were identified, 2,900 were catalogued, and 670 commercial and 90 noncommercial materials were evaluated using a revised form of an evaluation instrument earlier developed by Peat, Marwick, Mitchell and Company.

It was found that commercial materials differ primarily in what populations they are prepared for and with what subject areas they can be used. Commercial materials tend to be designed for direct use by students and are usually intended as supplements to the regular secondary school curriculum, although much is also available for elementary schools as well. Commercial materials usually include textbooks, films, filmstrips, and cassettes, although other material forms are also available. Noncommercial materials are often prepared by teachers themselves, tend to span all grade levels, are intended to be used as part of regular curricula, and frequently are curriculum guides which describe activities than can be carried out in specific subjects to show their relevance to the world of work.

Peat, Marwick, and Mitchell's evaluation indicated that the great majority of commercial materials is still permeated by race and sex stereotyping. Only one-quarter of the commercial material contained clear and specific instructional objectives. The majority of the commercial materials (89 percent) contained no evidence of scientific evaluation; only one percent of the materials contained references to published reports of evaluation. Very few commercial materials were found to be available for special user groups--mentally and physically handicapped, incarcerated, senior citizens, and ethnics. For those materials directed to special populations, those prepared for females dominated all others.

Evaluation results for noncommercial material were somewhat more positive than for commercial materials. Seventy percent of the noncommercial materials examined were found to be free of race bias and 51 percent free of sex bias. Noncommercial instructional materials contained clear and specific objectives in the majority of instances (68 percent). None of the noncommercial materials evaluated provided activities suited to students with special needs.

AUDIO-VISUAL

A career education resource which has received considerable attention is the *Bread and Butterflies* series which is comprised of fifteen television programs on career development for children nine to twelve years of age. The television series is also supplemented by curriculum guides suggesting pertinent classroom activities. One evaluation of the series (Flaugher & Knapp, 1974) involved ninety-four classrooms and more than 2,000 fifth graders in rural and suburban areas dispersed across the nation. Four major concerns were:

1. Did students comprehend the program?

2. Was the program appealing to the students?

3. Were the educational objectives met by the television program alone?

4. Were the educational objectives met by the television program plus the classroom activities?

Evaluative/research data were collected by student questionnaire, student interviews, student critics, teacher questionnaire, expert judgment, attention measures, and observers. Sample programs from the series were shown and evaluated under normal school television viewing conditions. The findings were that students did comprehend the programs (concern one) and that there were no major criticisms of the program appeal (concern two). However, the evidence was that the programs almost universally did not meet the educational objectives set for them (concern three) and that, in general, no changes in student performance could be detected by means of questionnaires administered. The explanation for these findings was that the data collection instruments were too crude or poorly constructed. The overall evaluation was that the impact of the programs was positive, and they were popular with both students and teachers. More specifically, they should constitute a fundamental and valuable *component* of a more diversified unit on career education.

Television programs beamed from satellites have also been used in some parts of the nation to deliver concepts and information pertinent to career education. One such project occurred in the Rocky Mountain Region during the 1974-75 school year (Lonsdale & Williams, 1975). A television series called *Time Out* was developed to deal with "Career Concepts" and objectives in three categories: decision making, self-assessment, and career exploration. These were intended to be mutually supporting types of information. Supplementary student magazines and teacher guides including learning experiences were also provided to participating schools. The specifics of the evaluation process of instrumentation were not described except for six minutes of interaction between participating sites and project staff at the end of each program. The conclusions reported were that the special format not only stimulates adolescents to accept the programs but also increases comprehension of the educational objectives.

The Culver City Unified School District in California (Mitchell, 1971) studied in what ways and under what conditions the vocational guidance series, *Careers in the 70s* might be used in vocational guidance programs. A random sample of students from four schools served as subjects. The films affected students' attitudes positively to motivate them to seek additional information and to make career choices. However, it was not possible to generalize the reaction to programs that would merely show films without a planned program. The study found that even though the same films were used in each setting, student outcomes differed considerably, depending upon how they were used. The films portrayed many jobs that students in one school perceived as beyond their options; the delivery system in that school did not provide for bridging the gap between presentation and reality, and students, although temporarily expanding their level of aspirations, soon rejected the presentation as not only unreal but deceptive.

Johnson, Korn, and Dunn (1975) studied the effectiveness of a slide-tape presentation as compared to printed or aural presentations of occupational information. The participants were fifty-eight high school students ranging in age from fifteen to seventeen; forty-six were male and twelve were female. All had been identified as reluctant learners. The participants were randomly assigned to four groups: three treatments and a control. A post hoc information test and a questionnaire constituted the data collection methods. Using one-way analysis of variance and the Duncan multiple-range test, a significant difference was found among the four groups on the information test. The group who viewed the slide-tape presentation scored significantly higher than did the reading, listening, or control groups. Similar results were found in the analysis of data from the questionnaire. There was an overall difference among the three groups, with the group viewing the slide-tape presentation being more positive in their attitudes toward the program than were either the reading or listening group. In addition the reading group was significantly more positive toward the presentation than was the listening group although on the information test there was no significant difference between these two groups.

MULTIMEDIA APPROACHES

The Indiana Career Resource Center evaluated four types of career education media by obtaining the opinions of elementary educators of their value (Carmichael et al., 1973). An evaluative questionnaire was developed and sent to 116 persons within a 60-mile radius of South Bend, Indiana, who had used one or more of the media being evaluated. A sixty-six percent return was obtained. The media evaluated were:

1. Developing Understanding of Self and Others (DUSO Kit).
2. First Things (Guidance Associates).
3. Law's Transparencies.
4. Come to Work with Us (Beginning Sextant Series).

Each of these was evaluated on a scale of excellent, fair, good, poor, or did not use. The results were that these media were rated as excellent by a large percentage of the respondents. Unfortunately, however, these media were not rated against each other in terms of their effectiveness in meeting specific objectives.

Faculty of the department of psychological studies at Teachers College, Columbia University have for many years been developing a computer-based guidance system which applies many of the conceptual ideas about career planning flowing from the work of Super and his colleagues at that institution. The computer-based system, the Educational and Career Exploration System, has been evaluated on many bases. In regard to its relationship to career education, a recent study by Myers, Lindeman, and Thompson (1975) is pertinent. This design asked whether users of the system would show larger gains than a control group on: (1) degree of planfulness and (2) knowledge and use of resources for career exploration. Using an experimental sample of 792 and a control group of 1,453 tenth graders, and analysis of covariance procedures, the findings were that the experimental group (those participating on the computer-based system) showed significantly larger gains than controls ($p < .01$) in both behavioral areas.

Godwin (1974) has briefly reported on SIGI, another computer-based career guidance system under development at the Educational Testing Service, Princeton, New Jersey. SIGI is designed to help students in community and junior colleges make career decisions. Data collected during the pilot trial indicate that students who had used SIGI were more aware of the career options open to them and the costs and risks associated with these options than students who had not used the system.

PRINT MATERIALS

The First and East Tennessee Development Districts compared the relative effectiveness and costs of teaching career information utilizing the mediums of microform and hard copy (Ahern & Bice, 1974). The sample of students involved consisted of thirty-three intact sixth grade classes including 1,104 sixth grade students (594 female and 510 male). Students were divided into two experimental and one control group using a posttest only control group design (randomized block). Statistical manipulation of the data included analysis of variance with a least squares regression procedure. Results included:

1. Significant differences in the amount of career information recalled in favor of microform experimental group as compared with control group.

2. Significant differences in favor of career information recalled in favor of hard copy experimental group as compared with control group.

3. Significant difference in career information recalled in favor of microform as compared to hard copy.

4. There was a difference in initial direct costs of an elementary career information system in favor of hard copy. However, maintenance of microform was less expensive than hard copy. Overall recommendation was for use of microform which was more effective than hard copy and also represented savings in material and replacement costs as well as storage space.

MOBILE UNITS

Some governmental sectors have developed mobile units to provide a focus for career education efforts among different schools. The Territory of Guam is one such place. Career guidance was provided by a mobile facility which included occupational and educational information as well as counseling (Rash & Marking, 1975). The objectives of the unit were to enable students to look at themselves in regard to work, expand knowledge of occupational areas, begin narrowing of occupational choices, be aware of educational requirements and be aware of educational training. Evaluative data were collected by means of homemade questionnaire and participant observations. The number and type of students providing feedback were not specified.

The results--which were not given in terms of statistical significance--included the following:

1. Students found individual study in the unit enjoyable.

2. Students thought this method of getting information to them was successful.

3. Students reported expanded occupational awareness, expanded vision of career opportunities.

4. Students indicated that they were aided in looking at themselves in regard to work and in stating educational requirements.

COMMUNITY AND PARENTS

The Ogden, Utah, City School District implemented a comprehensive career education project (Drechsel, 1975). Included were several components: (1) A World of Work package, (2) Operation Partnership emphasizing relationships between local merchants and the school, (3) efforts to acquaint parents with the program, (4) infusion of career development into regular curriculum, (5) eight teachers as advisors, and (6) career guidance and placement. The relatively unique aspect of this program was the collection of prequestionnaire and postquestionnaire findings from thirty-one businessmen and eighty-one parents as well as from students. The results were that on sixteen business questions, the post responses by local employers became more negative on thirteen of them (extent that they might be willing to accept on-the-job training, the extent to which they would give input to the program or be willing to visit schools, and the extent to which they would permit field trips). Positive posttest gains were made in the areas of involvement in career days and participation in curriculum design. Parents showed ten positive and six negative changes on the posttest. The greatest positive changes were in how parents view their cooperation with the child's career experience, involvement with on-the-job training, and degree to which they discussed career education and awareness of other school programs. A major negative change was in the importance of career information in helping their children in deciding on their career. Assessments of student attitudes also by a locally developed questionnaire showed a general pre/post trend, although slight, to a more positive evaluation of career education. On a knowledge survey, high school students made a greater positive pre/post shift than junior high school students on levels of knowledge. The specific statistical manipulations were not specified.

Lowe (1973) studied selective effects of a career education program on upper-grade-level elementary school students. Sex, parental occupational level, and degree of career education program implementation were investigated to determine their effects on occupational aspiration of 200 fourth, fifth, and sixth grade students in Calhoun County, Michigan. The criterion variables were scores on the Career Development Battery and the Occupational Aspiration Scale. The results indicated no interaction between the three independent variables so that remaining analyses were conducted with one-way analysis of variance. No differences were found between male and female students on occupational awareness, knowledge, and aspirations. The degree of career education implementation by teachers was associated with student gains on occupational knowledge and awareness but not for occupational aspirations. The prestige level of parental occupations is related both to the student's occupational aspiration level and to gain in occupational knowledge. It was also suggested that students tempered the occupational aspirations initially associated with high, medium, and low parental prestige levels and became more realistic in thinking about their future occupations as a result of involvement in a career education program.

CAREER RESOURCE CENTERS

A study by Ellis and others (1975) of career centers in the State of California indicated that simply making media available is no assurance that these materials will be used. About 38 percent of the students did not use materials and equipment at all when they were in the career center; 26 percent spent less than 20 percent of their time in the career center using materials; 14 percent spent between 20 percent and 40 percent of their time; and only 22 percent spent more than 40 percent of their time in the career center using the center's occupational and educational media. The study also showed that printed materials are used more often than audio and/or visual materials. Use of available media appears to be related to (1) accessibility, (2) staff availability, and (3) organization and display. The author cautions the reader that the findings reflect the average use of media in career centers studied. There are specific examples around the country in which media are used much more fully.

SIMULATIONS

Carlson (1972) studied the effect of using achievement motivation simulations on the vocational development of high school students. A sample of 200 tenth grade students from four Washington, D.C., high schools were randomly assigned to experimental and control groups. The experimental population received one week's training in achievement motivation simulations while the control group remained in the regular curriculums. Statistically significant differences between treatment and control groups in three out of four schools demonstrated that vocational maturity increased as a result of the treatment.

Altschuld et al. (1974) studied a series of simulated occupational experiences designed for junior high school students. In the simulations, students assumed the responsibilities of health and welfare workers in a drug treatment center. The occupational roles included one director, physician, psychologist, medical technician, pharmacologist, nurse, probation officer, and social workers. The experimental design involved two Colorado schools, with a total of four experimental and four control groups involving seventy-three eighth and ninth graders.

Assessments included knowledge and affective testing as well as student and teacher questionnaires and a review panel. Results revealed that the simulation had a positive impact on student occupational knowledge. No statistically significant results or changes in occupational preference were noted.

STAFF DEVELOPMENT

While one of the key needs to implement career education successfully is inservice staff development, little research attention has been devoted to analyzing effective techniques to meet such goals. In the research studies which are available, the prime focus is on testing whether a specific inservice workshop yielded certain attitudinal or behavioral change in the participants. Even when such results are positive, little is known about which of many possible patterns is the most useful.

INSERVICE PATTERNS

Kansas City developed an inservice program for elementary school teachers (CETIP) which introduced them to the philosophy of career education, its use in school curriculum, and the development of teachers as an extension of guidance and counseling (Clapsaddle, 1973). The program emphasized the career awareness dimension of vocational development: what is work, who works, why people work, what is my work. Inductive exercises were used to avoid separating philosophy and practice. Evaluation of the program was undertaken by comparing the scores on the attitude scale of the Vocational Development Inventory (VDI) between two groups of black sixth graders in the Kansas City Schools. The experimental group consisted of 122 children in one school whose teachers participated in the program. The control group consisted of sixty-five students in another school whose teachers did not participate in the career education inservice program. The statistical procedures involved analysis of covariance using the pretreatment VDI scores as the covariates. A significant difference was found between the experimental and control groups (F value of 17.50, df = 1/180, $p < .05$) indicating that the elementary school teacher's participation in the inservice program was associated with greater vocational development attitude maturity in students than was true when teachers did not participate in such inservice activities.

The Iowa Department of Public Instruction evaluated their 1974-75 inservice training workshops for teachers working with the *Bread* *and Butterflies* television series and the teacher trainers who would conduct the workshop (Wolvek, 1975). Several major questions were investigated:

1. What is the present attitude of the participants about career education?
2. What are the effects of the *Bread and Butterflies* series upon attitudes of teacher trainers?
3. What are pre/post teacher trainer attitudes?
4. What effects upon teachers in grades four, five, and six would teacher trainers have?
5. Would career education attitudes of fourth, fifth, and sixth grade teachers be positively affected by exposure only to *Bread and Butterflies* without inservice?

The subjects included teacher trainers, 500 randomly selected teachers, and control teachers located in different areas of the state. The design was a pre/post experimental/control scheme. Data were collected using a modified career Development Attitude Test. The results obtained were:

1. Those exposed to *Bread and Butterflies* but not inserviced did not change attitudes.
2. Inserviced teachers were not different from noninserviced teachers in their initial attitudes to career development.
3. The teacher trainer attitudes were significantly more positive ($p < .01$) following provision of inservice training.
4. Teacher trainers who did provide inservice training to their faculties on the average displayed a more positive career development attitude than did the teacher trainer group that did not provide inservice training to their faculties ($p < .01$).
5. The mean posttest career development attitude score of the teacher trainers was more positive than that of the mean posttest faculty career development attitude score.

Central Texas College evaluated the effectiveness of a "talk-back" television system for delivering a teacher inservice course on career education. Seventy-six teachers from grades one to six were given a pre/post questionnaire (not specified) to identify both their information about career education and their perspectives on the delivery process (Fruchter & Higginson, 1975). On the posttest, of fifty-six responses, most found this method of training better than training films or slide-tapes, and thirty found it was better or the same as traditional inservice programs; twenty-three found the television interaction to be effective; forty would have liked more interaction even though compared to typical workshops; thirty-one found the amount of interaction to be the same or more; forty-five recommended this type of training to be developed further.

The Fort Osage Public School District R-1, Independence, Missouri, studied the effect of inservice teacher training in career education on the achievement of students in three elementary schools. Two experimental treatments were compared with a conventional approach. Experimental Method A consisted of teaching selected career education concepts by teachers who had received a three-week orientation to the career cluster concept and who had written curriculum oriented to the cluster concept over an additional three-week period. Experimental Method B involved the teaching of selected career education concepts by teachers who had received a three-hour orientation to the career cluster concept, who had not written curriculum oriented to the career cluster concept, but who taught the curriculum which had been developed by their colleagues in Method A. In Method C, the conventional approach, the teachers were encouraged to teach the concepts of career education but were given no assistance in securing career-oriented career units developed by their colleagues in Method A. When tested, the fourth and fifth grade students who experienced teachers exposed to Methods A or B reportedly demonstrated significantly higher gains in achievement of career awareness and self-awareness than students exposed to Method C.

SUMMARY OF FINDINGS

Career education is an infant, viewed across the life span of American educational history. Therefore, it is not yet possible to expect evaluation or research findings that testify to the long-term effects of career education on the attitudes or skills of persons exposed to it. Instead, one must infer the vitality of career education from its growth, the attitudes held about it, and the evidence of short-term gains to which it contributes. These are the areas in general to which the present evaluative/research base is addressed.

Given its short history, what do we know about career education? Does it work? The answers to those questions depend on the rigor one expects from the research designs and statistical procedures employed to answer the questions. If one holds to absolute criteria for psychostatistical experimentation, relatively little is known about whether career education works. If one is willing to accept less rigidly defined and implemented evaluative and research results, considerably more can be said about the matter.

The following outcomes are an attempt to summarize both what is now known about career education and what is likely to be true but less clearly supported.

1. By any measure, state and local efforts labeled as career education in content and goal are occurring throughout the United States. The largest amount of effort in career education has been at the elementary and the junior high school levels, although there are less frequent examples at the senior high school and in higher education and the community.

2. Career education efforts have grown each year since 1971 in virtually all states.

3. Most of the funding for career education has been provided by local or state authorities rather than federal agencies, although it is likely that much of the fiscal support identified as local or state are federal flow-through funds in vocational education, cooperative research, education of the handicapped, or other state-monitored funds such as ESEA III and IV. Even so it is clear that career education has been embraced at grass roots levels in a comprehensive fashion.

4. Surveys of parents, teachers, and students about the goals or intent of career education tend to be positive with almost no exceptions. When comparisons are possible, it is apparent that elementary school teachers are more enthusiastic about career education than are secondary school teachers. In specific settings and among some populations, ignorance of or confusion about career education continues to prevail. There is some evidence that there are some professional and lay persons who view career education as a fad or with other types of skepticism.

5. Although career education efforts are taking place in at least one-third of the nation's school districts, relatively few instances of comprehensive kindergarten to twelve programs are evident.

6. Little evidence is available of career education efforts being specifically tailored to the needs of special populations (the

physically or mentally handicapped, women, ethnic groups, racial minorities).

7. There is little direct evidence that career education programs are being developed from specific theoretical models or concepts. An initial category of concern to this paper was the relationship of career development theory to career education. However, no research or evaluation studies were found which pursued such relationships directly. There are many studies available which test specific hypotheses generated by different theoretical approaches, but these studies typically do not address career education in either the procedures or the findings. It seems apparent that many current career education projects have borrowed their goals from national or state demonstration projects which themselves may have originally used career development theory of some description (Holland, Super, Tiedeman, Roe) for a conceptual frame of reference. Unfortunately, the original linkages between career development theory and national or state model goals have tended to become obscure as the goals have taken on their own legitimacy in the eyes of those who borrow the goals indiscriminantly. In some other instances, career education projects tend to be atheoretical, focusing on means rather than either goals or outcomes.

8. In a number of projects, the term *career* seems to be misused. What is actually occurring is an occupational focus: an emphasis on immediate choices rather than intermediate and longer-term planning. Similarly, in such approaches, very little emphases seem to be given to volunteerism, leisure time activities, or implications of work conditions and characteristics for different life styles.

9. Successful career education programs tend to evidence considerable community involvement and the bringing of students and working adults together in some direct fashion.

10. There is as yet very little preservice preparation of teachers or other personnel in career education.

11. Most career education staff development is of an inservice nature.

12. Many evaluation reports tend to be descriptive of the types and amount of participation by teachers and students in career education efforts without assessing the quality of this participation or the relationship of certain types of career education participation to subsequent outcomes: for example, student learning.

13. In terms of specific results related to multicomponent career education efforts, the following could be estimated from the studies examined here.

A. After all career education efforts are evaluated, several studies indicate that parents are still the most influential factors in the students' career development.

B. On most career education outcomes, the results are mixed. While there are usually statistically significant changes reported on either pre/post or experimental/control bases, one can find nonsignificant results on the same controls at the same general grade level in some other evaluations and, in some few instances, situations where the controls exceed the experimentals. On balance, one finds career education evaluations reporting generally significant changes in knowledge of a wide range of occupations, in career/occupational awareness, in motivation, work habits and attitudes, and attitudes toward school. Self-concept changes, increases in academic achievement, changes on the *Career Development Inventory*, the *Career Education Questionnaire*, the *OVIS*, and *Coopersmith Self Esteem Scale* are more problematic. Some projects achieve significant differences, others do not. In the absence of standard assessments that a treatment, a process, a teacher behavior labeled the same really mean the same from project to project, it is difficult to account for the variance in outcomes reported. Similarly, while career education goals may be titled the same way from project to project, they are frequently assessed with quite different criterion measurements. Often these measures are uncorrelated with each other, and thus the outcomes actually being measured are hard to interpret. If two projects seek the same goal but measure it with uncorrelated instruments and each secure significant results, the meaning is not clear. If the content of the measurement instruments is different can the processes in the two projects be the same and do the significant outcomes mean the same? It is doubtful but difficult to know under the current conditions.

C. It is particularly interesting to note that in the studies reviewed here when academic achievement is a criterion variable, there are studies suggesting statistically significant increases in such achievement in favor of the career education groups, and there are studies indicating no significant differences between experimental and control groups. There are no studies in which there are significant results in academic achievement favoring the control group.

> In essence, then, these studies suggest that on the one hand, career education is likely to increase the academic achievement of students; on the other, when there are not significant differences between experimentals and controls it suggests that career education does not harm academic achievement even though it adds other elements to the curriculum.

14. In the evaluations of experience-based career education efforts, results were not unlike those found in multicomponent school-based career education programs. Academic achievement of students in these career education approaches either increased or remained the same as the controls. Positive findings were also found in career maturity, attitudes toward school, personal responsibility, specific career planning, self-appraisal, and sense of achievement which exceeded those found with comparison groups. Students generally enjoyed the individualized, flexible and community-based nature of these programs, although they sometimes missed their friends and felt cut off from their regular schools. When queried about the experience-based programs, parents and employers were generally favorably disposed to them. They typically felt that such programs were good alternatives to traditional approaches. However, some concerns were expressed about the screening of students; some parents felt that students did not have control or discipline in the program and were not responsible enough themselves to be placed in such a situation.

15. The evaluative results of Career Education Model IV, which serves a rural disadvantaged population in a total living-learning environment, show positive results in career maturity, in less rebelliousness toward others in a simulated work context, and in their continuity and level of employment among selected samples of the participants.

16. The results already reported for the multicomponent school-based career education approaches and for the experience-based approaches do in fact reflect the results of curriculum development. However, there are studies dealing more specifically with the issue of curriculum development than those cited previously. Several studies have looked at the feasibility of combining or infusing career education concepts into consumer education, reading, language, and some other content. It was found on criterion measurements in such areas as self-concept, the Iowa Tests of Basic Skills, other measures of academic achievement and school attendance that students exposed to career education did as well as or, in most studies, better than comparison students in traditional classes.

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17. In the several studies of specific decision-making courses, or short-term individual or group counseling directed to facilitating vocational development of students, generally positive results have been found. While there are several studies in which no significant results were found between experimental and control groups, the more specific the career planning experience to which students are exposed, the more positive the results tend to be. Students in experimental career planning courses or counseling groups tend to have higher academic achievement, more positive attitudes toward college (if they are college students), more certainty about completing their programs, higher measured career maturity, and able to make more appropriate educational vocational choices than control students. Also, there is some indication in these studies that, in terms of sequence, if students learn about themselves before they are exposed to occupational information, or if they can request such information as they are ready, their learning is significantly facilitated.

18. Studies of learning resources, particularly commercial, tend to show that relatively little, if any, evaluation has been done about most of them. The commercial materials available tend to be supplements to the regular curriculum rather than substitutes for the regular curriculum. Noncommercial, locally developed materials tend instead to be substitutes for regular curricula. Very few commercial or noncommercial materials are available for special groups--physically handicapped, ethnic or racial minorities, senior citizens, women, adults. Many of the commercial materials and fewer noncommercial materials are found to contain racial and sex stereotyping.

19. Studies of audio-visual material as well as of career centers and to some degree other learning resources tend to show that films or materials independent of a planned program do not yield as positive results as those integrated into a program. Similarly, it was found that having a lot of information available is no assurance that it will be used unless it is placed in a programmatic format.

20. Studies of staff development available reflect primarily inservice rather than preservice emphases. Typically, evaluation of these programs is undertaken by asking teachers or other participants their opinion about the experience, or they evaluate the effects upon students exposed to teachers who have experienced career education inservice compared with students whose teachers have not been so exposed. The results available suggest significant

differences in vocational development for students whose teachers have had various types of inservice in career education compared with students whose teachers have not had that experience.

SOME CONCLUSIONS AND RECOMMENDATIONS

One way of thinking about career education is to consider it a series of hypotheses about intervention strategies put in place to change the conditions to which career education is addressed. For example, if process X (more career-oriented curricula) is implemented, then product Y (students who are more career-aware) will result.

In such a perspective, there are direct research and evaluation linkages between a conceptual base used to explain some social, occupational, or educational condition to be changed, the process implemented to effect the change, a population, and a result. Each of these elements--problem/theory, process, population, product--is testable in relationship to some other element(s)--conceptual frame-process, process-population, process-product, process-population-product. Different audiences are more likely to be more interested in some of these interactions than others.

It seems fair to state at the moment that beyond estimates of the frequency of career education efforts or participation in it, the major question which has been asked is, "Does career education make any difference in student learning?" This is a summative or product question which is of primary importance to educational decision makers and policy makers. As the previous section has shown, there are some tentative answers to that question now, although given the complexity of the ideas that career education represents, it is not reasonable to expect a definitive answer. The more appropriate question would seem to be, "What kinds of learning occur from which processes with what types of persons under which conditions?" Framed in such a fashion, it is clear that many specific answers are still to be obtained, and some that are now tentatively available are contaminated by methodological problems.

Previous federal documents have spoken to the status of research and evaluation in career education and are worth citing here since they reflect similar views to what has been stated before and to what will be noted in the final pages of this paper. For example, the 1974 Office of Education mini-conferences (Miguel, 1976) relating to career education evaluation suggested that relatively little evaluation was directed to the matter of student learning compared with other types of assessments.

The most commonly assessed activities (McLaughlin, 1976) were project financing, project staff, number of schools served, populations served, use of community resources, curriculum materials services, dissemination of information, local public relations, training of staff, the effect of both the career curriculum and the regular curriculum on pupil performance, the extent and quality of implementation, and the acceptability of the program to various school and community groups. These types of information are clearly important, but in most of the instances cited they bear only peripherally on whether career education makes a difference in student learning.

It may well be that the best and most feasible vehicles for the evaluation of career education are the various state assessments of student progress. Some states, for example Missouri, are conducting assessments of the knowledge and perspectives of graduating high school seniors. Other states, for example Louisiana, Montana, Pennsylvania, and Texas among others, are conducting continuous assessments of the attitudes and skills of samples of elementary, junior high, and senior high school students. Most of these assessments include career-related areas. Several of the state assessments are conducted in conjunction with or using the models developed by the National Assessment of Education Progress which is itself studying the skills, attitudes, and understandings of a large national sample of students at ages nine, thirteen, and seventeen and adults in relation to such goal areas as: (1) prepare for making decisions, (2) improve career and occupational capabilities, (3) possess skills that are generally useful in the world of work, (4) practice effective work habits, and (5) have positive attitudes toward work.

On balance, it may well be that statewide assessments of student outcomes related to various educational experiences should be given fuller encouragement and support than has been true to date. In addition to such efforts, more opportunities need to be made available to train evaluators of career education under state or higher education auspices or both. As such efforts move forward, it will be well to note the state of the art in research and evaluation of career education which now exists. The following observations summarize such perspectives:

1. Up to the time of this paper, most of the findings about career education have come from evaluation reports on funded projects, not independent research studies. Several reasons can explain this situation: (a) career education's recency, (b) the fact that thus far federal monies have been primarily for demonstration, not for implementation, creating a need for evaluative studies where project funds have been allocated but restricting the types of local efforts likely to be evaluated, (c) the small amounts of research funds available in career education outside

of an evaluation context, (d) the relative lack of evaluation and research which traditionally goes on as part of local educational efforts outside of those stimulated by some form of external funding.

2. In general, the research reported in doctoral dissertations and in journal articles is of higher quality than career education evaluation studies reported in project reports.

3. Many of the reports of career education projects tend to treat evaluation as an afterthought, not something integral to planning and implementation of a project.

4. In many career education projects, the conceptual framework is obscure, making it difficult to know what changes in students or in other participants (teachers) might be anticipated. In addition, the actual content of the career education processes is not well described or assessed, making the choice of criterion measurements quite problematic.

5. Since relatively few career education assessment devices have been developed so far, those which are available tend to be used over and over again without matching precisely what they purport to measure with the behavioral objectives or goals particular projects intend to achieve. It appears that some project directors use a published instrument because they must evaluate the project, not because the instrument fits the project intentions. The result is that after everything is said and done, when nonsignificant findings occur it is not clear whether these are because nothing is accomplished or because what was accomplished was not effectively measured.

6. It is often difficult to differentiate the actual changes made in educational or counseling processes as a result of career education. The term itself is comprehensive and covers a great many possible approaches. It appears, however, that in some instances ongoing processes have been renamed rather than significantly altered. In these cases, it appears that some nonsignificant findings between pretesting and posttesting or experimental/control reflect the fact that nothing has really been done to affect the content or opportunities to which students are exposed. It seems fair to say that the more specific and the more concrete the introduction of career education concepts and activities is compared with traditional instruction the more likely one will find significant differences in outcomes.

7. In some studies where significant results are claimed, it is not clear that statistical significance equates with educational significance. Probabilities of .10 rather than the more conventional .05 or .01 are used in some projects as the alpha level; two or three significant results out of forty or fifty tests in a particular project are sometimes given considerable credence when they are likely to be chance results; one or two score point differences in a large sample can yield statistical significance but be problematic outcomes when actual educational difference is assessed. Each of these procedures or descriptions of outcomes does exist in the literature with more frequency than is useful.

8. There is little evidence that institutional effects upon career education have been considered. Therefore, the role of administrative support or of different administrative styles, while likely to be highly important in career education effectiveness, is yet to be given much attention. Case studies of career education implementation using anthropological or sociological methodologies would be helpful here. So would studies of the additive effects of certain administrative styles, specific resource levels, particular frequencies or forms of inservice, type of planning, and treatments in different configurations.

9. Apparently, some career education outcomes are easier to achieve than others. As shown in the previous section the acquisition of occupational information and other cognitive content typically results from project activities directed to such ends. However, affective outcomes such as changes in self-concept are less universally achieved. It is likely that the latter are simply more difficult to achieve. But it is also likely that the precision of measuring affective outcomes is not yet equal to that of measuring cognitive outcomes.

10. One of the most troublesome aspects of the career education evaluation studies (contrasted to most of the research reported in journals or dissertations) is the tendency to pool a variety of elements, describe them collectively as the career education program, and contrast the combined results against so-called noncareer education comparisons. Where significant results are obtained in favor of career education, one has no way of knowing which specific career education elements made the most significant contributions to which behavioral changes. In such cases, the specificity of treatment effect is lost and it becomes likely that many activities or processes now contained in multicomponent approaches really add very little to the

outcomes. Thus, a whole series of rival hypotheses can be generated to explain the significant results obtained and the feeling persists that unnecessary things continue to be done under the name of career education but it is not clear which elements these are.

Pressing the matter further leads to the possibility that nonsignificant results for career education may also be related to pooled effects. In other words, it seems highly likely that in some evaluations the effects of potent career education processes are cancelled out by useless or ineffective processes. This type of phenomenon has been observed in many studies evaluating the efficacy of counseling. When therapeutic and nontherapeutic counselors are combined, significant results in favor of counseling rarely occur. When you study only the effects of therapeutic counselors the results are typically significant. It therefore seems likely that studying good teachers using specific treatments to obtain clearly stated objectives is a fairer test of the impact of career education than to combine good and poor or uncommitted teachers using nondescript techniques in the pursuit of global, undifferentiated goals. The latter state of affairs is now more the rule than the exception. In essence, without evaluating specificity of treatment effects in relation to subject characteristics and in relation to different outcomes appropriate to career education, little can be said about how to build particular types of programs to achieve certain goals for different types of populations.

11. Related to the matter of pooled effects is a subsequent lack of knowledge about the comparative advantage of different processes to accomplish particular kinds of outcomes. For example, "What, if any, are the advantages of an infusion approach over a specific course in decision-making skills in relation to developing career awareness, decision-making prowess or some other pertinent outcome?" Do these results hold for different aged populations and at different grade levels? Do racial or sexual characteristics make a difference in the outcomes? Currently, there is very little of this type of comparative analysis. It might be added here again that complete descriptions of the activities studied is essential so that others may replicate the findings in other settings and populations.

12. Another major issue in both research and the evaluation studies in career education is the expectancy effect. In essence, unless comparison/control groups have as much expectancy for change as the experimental (career education) groups this difference itself

would be enough to explain significant differences between the two. Given the relative lack of specific process or content description present in most current evaluation and research studies, it is difficult to know whether the matter of equal expectancies between groups has been considered or systematically dealt with.

13. Of similar concern to the expectancy effect is the matter of contamination of control or comparison groups. In essence, it is not clear in many of the reports whether experimental and comparison groups are the same before career education is introduced to the former, and it is not clear that control group members do not receive information and other experiences similar to the experimental group during the course of the study. Thus, it is not often evident whether the career education group and the comparison group have really pure differences or how pure the distinctions are.

14. Many of the research and evaluation studies are one-shot, one-group approaches. Rather than provide comparison or control groups, analysis is made of pre/post changes in the same group. In such cases it is difficult to be confident that career education rather than halo effect maturity, or other rival explanations produced the observed outcomes. While control procedures are burdensome, it is possible to do more sampling than is present in many studies or to use control data once obtained as base-line data against which to compare other experimental findings for several years into the future. There is evidence in some of the projects (for example, Crisp and Liberty Counties and the Hazlewood Project) that without control procedures and a longitudinal perspective, judgments made on a one-trial, one-group basis are likely to be premature or faulty. Career education outcomes in the same projects are not necessarily attained in the same magnitude each year. Processes subtly or deliberately change, populations change, and outcomes vacillate.

15. In reviewing observations like those above about the state of research in career education, it is hard not to feel that perhaps this is too critical a judgment of reality. Perhaps too much is expected too quickly. Even though few studies of career education meet experimental standards of rigor, there are a large number of studies which describe career education's impact as a positive one. Indeed, experimental rigor aside, the weight of evidence does favor career education. Given the fact that the bulk of these studies occur under natural conditions and are conducted by relatively untrained evaluators, the results may be more impressive than is generally acknowledged.

In this general vein, Hoyt (1975) has reminded that:

> The birth of a new idea properly precedes its expansion into an educational concept. The formulation of a new concept properly precedes a concern for testing its efficacy. Global evaluation of a concept's efficacy properly precedes the formulation and testing of research hypotheses aimed at discovering optimal means of implementing the concept in educational practice. The critics of a new idea in education typically use, as one weapon, a call for definitive research results even prior to the time the idea has been developed into a tentative concept form. This short set of generalizations could, I believe be illustrated repeatedly by those who study the history of new ideas in American Education. Career education is only the latest example. (p. 69)

Given Dr. Hoyt's paradigm it would appear that we are now in the stage of globally evaluating the efficacy of the concept, career education. If so, the next stage is to formulate and test-research hypotheses aimed at discovering optimal means of implementing the concept in educational practice. If we are to do this effectively, many of the observations cited here about the current deficiencies in evaluative and research studies need to be considered and acted upon. Neither the concept of career education nor its evaluation can profit from imprecision or from trying to be more than it is. Early indications are that career education is quite significant in its own right. Efforts must be concentrated on sharpening its substance and its clarity of purpose. It is to such ends that Evans (1974) stated:

> The sudden popularity of career education may prove to be its own worst enemy, for almost everyone will try to use it for his own ends. Thus the key question may well be: what is *not* career education, and how can it be prevented from masquerading as the genuine article; thus diverting attention and resources from the goals and activities to which real career education is addressed. (p. 272)

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